

**Vine Trail
Alignment Study:
Yountville to St Helena
Madison Street to Pratt Avenue**



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Vine Trail Alignment Study: Yountville to St. Helena



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Objectives

This report updates and expands two previous studies of a Class I trail connection from Yountville to St. Helena:

- 2019 Napa Vine Trail from Whitehall Lane to Grayson Ave Trail Report, and
- 2020 Vine Trail Study, Yountville (Madison Street) to St. Helena (Sulphur Springs Avenue)

In addition, this report incorporates the current study of the Vine Trail alignment through St. Helena, as completed by BKF Engineers and approved by the St. Helena City Council.

The objective of this study is to document and update the conditions, and update the route alignment based on the current conditions. This study reflects newly proposed roundabout designs at Madison Street, Oakville Cross Road, and Rutherford Road/State Route 128.

Project Segments

Throughout this document, the route is mapped and described moving south (Yountville) to north (St. Helena). The following Overview Map (**Figure 1**) shows the four segments of the Vine Trail that have been studied from Yountville to St. Helena, covering a total of approximately 10.2 miles.

- **Segment A** - 6.5 miles, Madison Street to Whitehall Lane
This segment mostly parallels the Napa Valley Wine Train and State Route 29. Trail opportunities, constraints, and alternatives were examined in detail in the 2020 Vine Trail Study. The 2020 study relied on data provided by Reichers & Spence Associates. The current study provides and updated route based on current information.
- **Segment B** - 2.4 miles, Whitehall Lane to Mitchell Drive
This segment follows the west side of State Route 29. South of Lewelling Lane (1.4 miles) the trail would be within the unincorporated portion of Napa County. North of Lewelling Lane (1.0 miles) the trail would be within the City of St. Helena.
- **Segment C** - 0.4 miles, Mitchell Drive to Adams Street
This segment follows local streets within the City of St. Helena.
- **Segment D** - 0.8 miles, Adams Street to Pratt Avenue
This segment follows the Napa Valley Wine Train from Adams Street to Pratt Avenue, and parallels Pratt Avenue from the Wine Train corridor to Main Street (State Route 29).



Related State, Regional, and Local Studies

Highway 29 Specific Plan (2005)

The Highway 29 Specific Plan, funded by Caltrans and led by the City of St Helena, documents existing conditions along SR 29 and outlines large scale changes to zoning in St. Helena. In the circulation element, the plan identifies the general goal of signaling intersections in southern St. Helena and implementing necessary changes to improve the flow of traffic onto and off of SR 29. Recent intersection improvements have been built at Grayson Avenue, including the installation of a signal and an additional crossing of the railroad.

(Highway/State Route 29 traffic data: ADT (average daily traffic) (2017) = 25,000; ADT (2037) = 34,000; DHV (design hourly volume) = 2,600; Speed limit = 55).

Napa County Bicycle Plan (2019)

The 2019 Napa County Bicycle Plan outlines a comprehensive plan to improve bicycle facilities throughout the Napa Valley. Chapter 7, the City of St. Helena Bicycle Plan, provides a comprehensive analysis of St. Helena's existing conditions and needs for bicyclists. The plan outlines the types of facilities and benefits of a low-stress connected bicycle network. It provides an overview of St. Helena's existing conditions and potential improvement projects. Notably, it includes the Vine Trail from Deer Park Road to Chainx Lane as a priority project.

Existing Context

Town of Yountville

Yountville is a small incorporated city located five miles north of Napa off State Route 29 (SR 29). Of the approximately 3,000 residents, almost half of them live at the Veterans Home of California on the west side of Yountville. The commercial core is along Washington Street. The existing Vine Trail from Napa is located along the western edge of town along SR 29 and has one connection into Yountville. A handful of other narrow trails connect to streets in residential areas.

City of St. Helena

St. Helena has a population of approximately 6,000 residents, and serves as a rural agricultural center. Over the years, with the growth and development of the wine industry, the city has become an important business center for the viticulture industry. St. Helena also serves as a commercial and business center for surrounding towns and unincorporated areas, including Angwin, Deer Park, and Rutherford. St. Helena is predominantly residential, except for the commercial areas immediately adjacent to SR 128/29, including a small industrial/office park at the southeast end of the city. Agricultural uses are also a predominant land use in St. Helena.

St. Helena's compact land use pattern, grid network of streets with relatively low traffic volumes except for State Route 29, and developed sidewalk network, coupled with its relatively small land area and mostly flat geography create many opportunities for residents and visitors to walk and bicycle throughout the community.

State Route 29

State Route (SR) 29 is a mostly flat state route that runs from Vallejo to Clear Lake in the northern San Francisco Bay Area. It runs through the center of Napa Valley and forms the main street for many towns, including St. Helena. In the area of the study SR 29 typically features two lanes of traffic and generally wide shoulders. In some places there is a center turn lane. In some parts of the northern portion of the project area it features sidewalks on one or both sides of the road.

Napa Valley Wine Train

The Napa Valley Wine Train is a privately operated excursion train operating in a corridor that was previously used as a freight branch line and passenger rail line. Historically, the rail line ran from Napa to Calistoga, generally parallel to SR 29. The current right of way, however, ends just north of St. Helena. Through most of the project area the rail line runs along the southwest side of SR 29. North of Whitehall lane it crosses to the northeast side of SR 29. In St. Helena, the rail corridor diverges from SR 29.

Bicycle Facilities

Bicycle lanes currently exist on the shoulder of SR 29 throughout this corridor with some signage. However, SR 29 is not considered a bicycle route in the 2019 Napa County Bicycle Plan. There are no protected bicycle facilities in the project area.

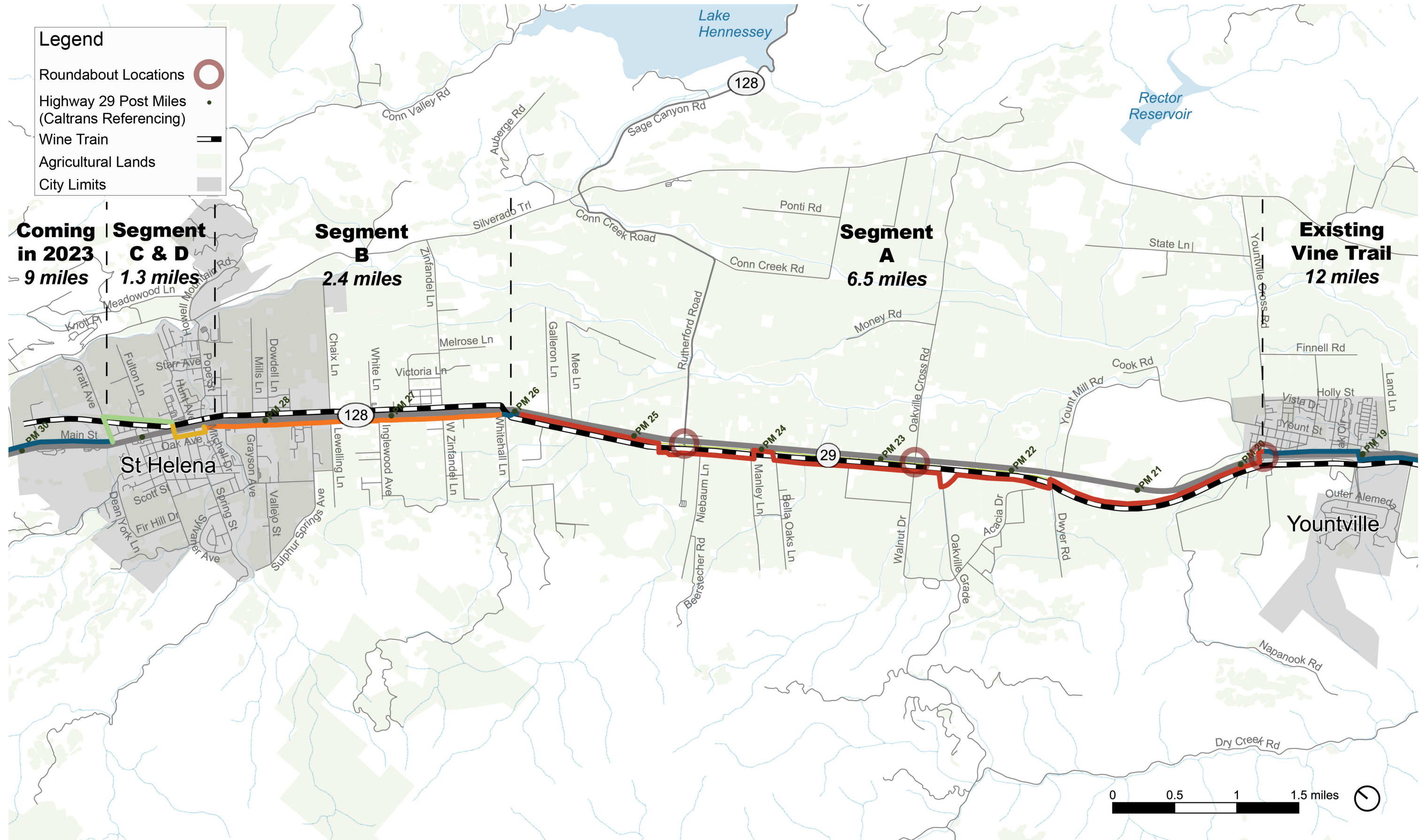


Figure 1: Study Overview Map

Opportunities and Constraints

Agricultural Roads

Existing agricultural roads are typically surfaced with dirt or crushed stone, are wide enough to accommodate passing vehicles (at least 14'), and structurally sound enough to accommodate heavy vehicles. In some places, with the support of the property owners and careful modifications, these may be appropriate for inclusion in the trail alignment.

Issues to consider include: agricultural vehicle use, surface material and crop spraying.

Agricultural vehicle use: The roads at the ends of vineyard rows (ie. where rows of vines are perpendicular to the road), are used for turning maintenance vehicles from one row to another. In these locations, the roads get frequent use and drivers have less visibility to the roadway. Therefore, these roads may be less appropriate for trail use than roads that are parallel to vine rows.

Surface material: Most existing portions of the Vine Trail consist of a paved surface, comfortable for use by road bicycles. But pavement tends to be damaged by agricultural equipment. Agricultural roads shared by the Vine Trail could be surfaced with Park Tread – a proprietary crushed rock surface with binder that is less subject to damage by agricultural equipment than paving, and which has held up well on existing portions of the Vine Trail near Calistoga.

Crop spraying: Crop spraying typically occurs a few times a year at night when the weather is coolest. On organic vineyards, less hazardous chemicals are used. Trails can be closed when spraying occurs, involving signage and barriers to notify trail users of the closed route and that spraying is occurring.

Local Access and Connections

A successful trail is a well-connected trail providing safe access and use by people living and working along the corridor and for people traveling to and from other destinations. These typically include routes from origins (housing, hotels) to destinations (i.e. wineries, vineyards, retail, employment centers, schools, etc.) around the site and beyond.

The most significant access constraints along the corridor include: SR 29, local roads and driveways, the rail line, and creeks or drainage ditches.

State Route 29 crossings: Outside of St. Helena, SR 29 has no locations where pedestrians and bicyclists are able to safely cross within the study area. See below for information regarding plans for roundabouts at Madison Street, Oakville Cross Road, and Rutherford Road.

Local road and driveway crossings: Road and driveway crossings present potential hazards to trail users as it is one of the few places where they would have direct interaction with vehicles. The proposed alignment includes numerous public road crossings and dozens of private driveway crossings. At least nine of the driveways lead to wineries or commercial businesses. The remainder are primarily residential access or agricultural road accesses. For most low-volume crossings, signs and painted pavement provide enough guidance and warning to focus drivers and trail users and reduce hazards. Where needed, lighting and/or flashing beacons can be useful.

Rail line crossings: Railroad lines present two hazards to trail users: the potential for a train collision, and the potential for bicycle wheels to get stuck in the rails. See below for a discussion of rail line crossings.

Creek and drainage crossings: Where the trail parallels a creek or drainage ditch, crossing can be difficult, limiting access to destinations on the other side. In some places, in collaboration with adjacent property owners, safe connections such as small bridges over drainage ditches can be built to enhance access for tourists and staff. See below for further discussion of creek crossings and drainage relocation/culverting.



Agricultural roads at the end of vineyards are critical for ongoing operations



View of the northern end of the existing Vine Trail at Madison Street

Drainage Ditches

While the terrain along the route is relatively flat, the rail line and SR 29 are raised and drain to either side, creating a barrier for surface water flow. There are a series of ditches along the rail line and the highway, many of which occupy the trail's potential location in the rail corridor or highway right of way. These ditches vary in depth from less than a foot to over 5 feet. Some of the ditches flow directly to creeks. The remaining ditches may have drained to creeks at one point, but over time they have become blocked and may now depend on water soaking gradually into the ground, with overflow during heavy rains.

As illustrated in the top figures to the right, it may be possible to relocate a narrow and shallow ditch (i.e. 1 – 2 feet) to make room for the trail. But a deeper ditch (i.e. 3- 5 feet) would be more difficult to relocate within the rail corridor. In some places, the ditch could be replaced by a pipe draining into the creek with the trail placed atop the pipe (bottom figures).

Depending on location of the ditch and the quantity of water that it drains, the solutions may be expensive to design, construct, and maintain. Where possible, the trail alignment has been located to reduce impacts to drainages.

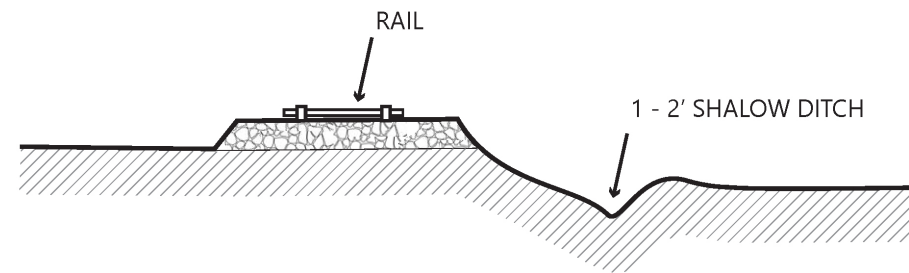
Creeks

Creeks add to the aesthetic and natural experience of a trail, but also present a barrier. The proposed Vine Trail alignment intersects just a few creeks that will require significant structures to cross:

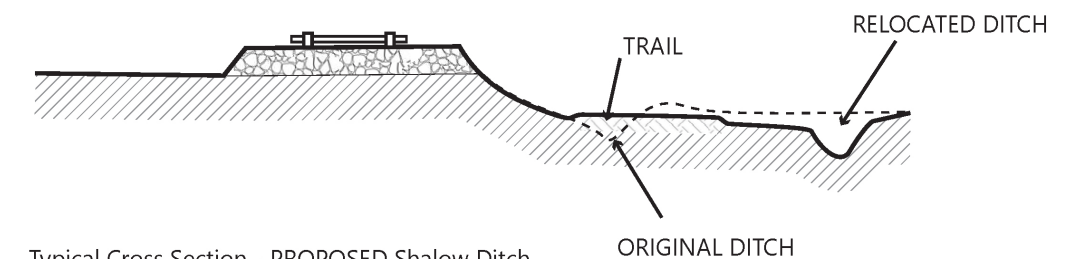
- Unnamed creek north of Dwyer Road (see Map A-11, ~40-foot bridge),
- Unnamed ditch south of Oakville Grade (see Map A-14, ~50-foot bridge),
- Unnamed creek south of Bella Oaks Lane (see Map A-24, ~50-foot bridge), and
- Bale slough tributary south of Mee Lane (see Map A-34, ~90- bridge or attachment to existing vehicular bridge).

Trees

Trees create shade for trail users and help to absorb stormwater, among their many other benefits. Some of the large oak trees in the project area may be hundreds of years old and are protected by County ordinance. The proposed trail alignment reduces impacts to trees wherever possible. In some cases the trail can be routed around the trees, depending on their location, size, and species. Where the trail will be within the tree's "dripline" (the area underneath the tree canopy), a skilled arborist will be required to ensure trail construction does not impact the tree's root system. In a very few locations, trees may have to be removed to accommodate the trail. The exact number of trees will be determined during final design, when a detailed survey of tree location, size, and species will be completed.

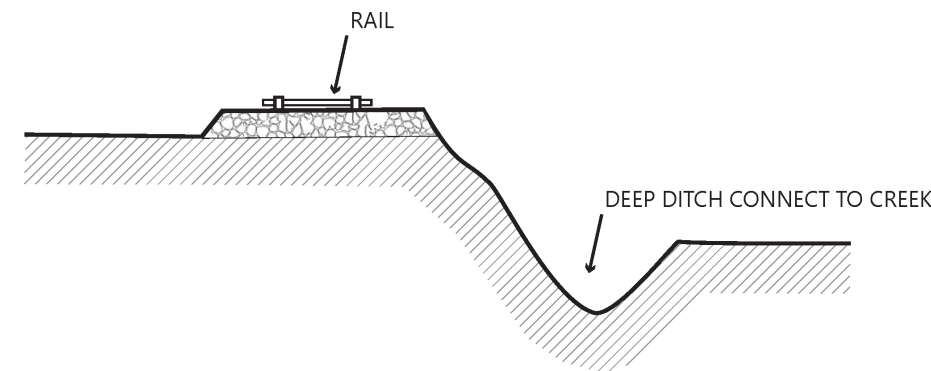


Typical Cross Section -EXISTING Shallow Ditch

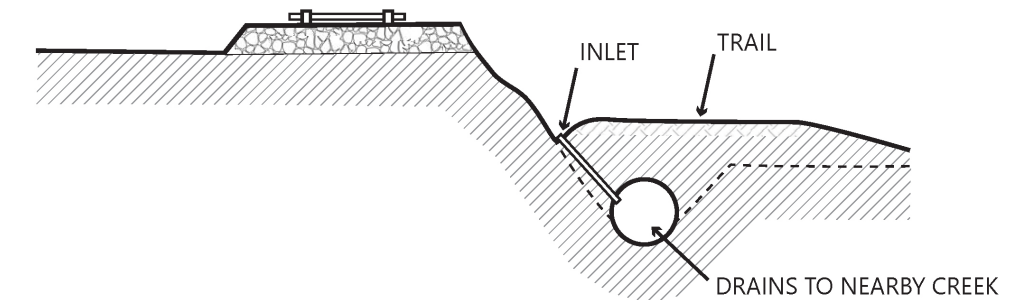


Typical Cross Section - PROPOSED Shallow Ditch

Existing and Proposed Cross Section showing how a shallow ditch might be relocated as part of the trail construction



Typical Cross Section - EXISTING Deep Ditch Drains to Nearby Creek



Typical Cross Section - PROPOSED Deep Ditch Drains to Nearby Creek

Existing and Proposed Cross Section showing how the trail might be built atop a deep ditch which connects to a creek

Rail Crossings

Railroad crossings by any transportation facility (road or trail) are overseen by the California Public Utilities Commission (CPUC). To reduce rail-related fatalities, the CPUC has strict guidelines on the design and construction of new rail crossings. While a bridge or tunnel is preferred, an at-grade crossing is typically allowed with significant safety measures such as signals (flashing red lights, a crossbuck and bell attached to a mast) and a gate which is lowered when a train is passing. Requisite studies, permits, coordination and construction/installation are expensive.

Rail crossings also present a hazard to bicycle riders, who can easily get a wheel stuck in the space between the track and the pavement, causing the rider to crash.

Generally, the proposed Vine Trail alignment was selected to avoid unnecessary rail crossings. However, some specific locations were so constrained that it is more feasible to continue the trail on the opposite side of the tracks. In all cases, rail crossings were limited to existing roadway or driveway crossings, which should reduce costs for crossing improvements. Most of the public roadway crossings may need almost no improvements to be considered safe for trail crossings. The private driveway crossings, however, will typically require significant safety upgrades.

Rail Corridor

The Napa Valley Wine Train owns, operates, and maintains the rail corridor from Napa to St. Helena. Rail corridors are often ideal locations for trails due to the long, linear right of way and flat grades. The Wine Train organization has agreed to provide an easement for the Vine Trail, making use of the rail corridor even more attractive. Wherever feasible, the proposed trail alignment is located fully or partially within the existing Wine Train right-of-way.

As with railroad crossings, uses adjacent to active rail lines are also heavily regulated for the safety of all users. A minimum 10-foot offset from the track centerline to the edge of the paved trail will be required. (See Cross Sections G'-G' and H'-H').

State Route 29 Right of Way

Through most of the project area the SR 29 right of way is wide and potentially suitable for the trail alignment. However, the noise, pollution, aesthetic experience, and high speed of vehicles make locating the trail in the highway shoulder less-than-ideal. Therefore, where the proposed trail alignment is located on the highway side of the rail line, it is situated as far as feasible from the travel lanes on the highway,

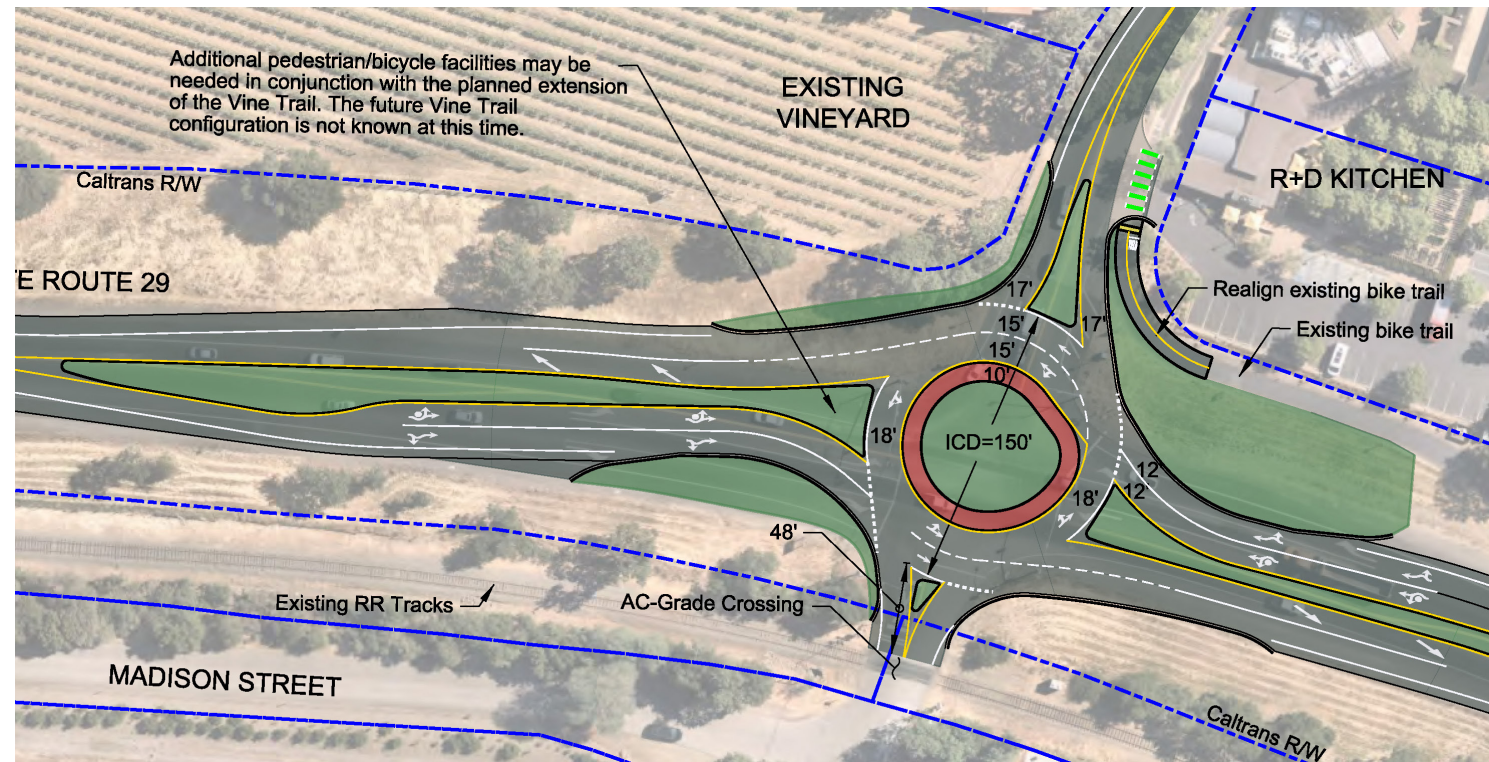


Example of uncontrolled rail crossing

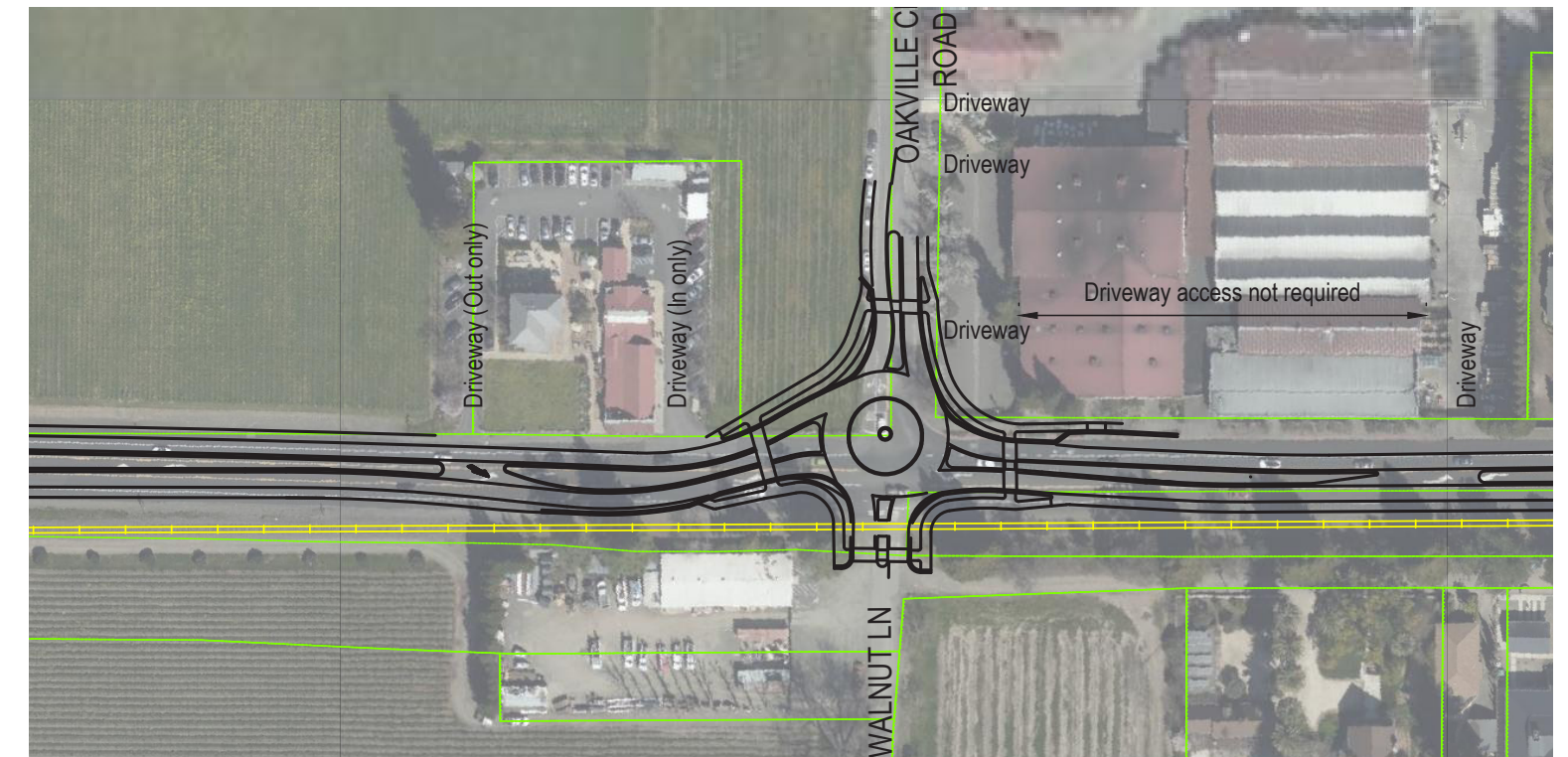
State Route 29 Roundabouts and Connection to Existing Trail

There are currently studies underway to develop roundabouts at three SR 29 intersections within the project area: Madison Street, Oakville Cross Road, and Rutherford Road. Each will provide an opportunity for safe connections to the trail. At Madison Street, the trail will be incorporated into at least two of the three legs, providing both a connection to the existing trail and a SR 29 crossing. At Oakville Cross Road and Rutherford Road the trail will cross the western leg of the roundabout.

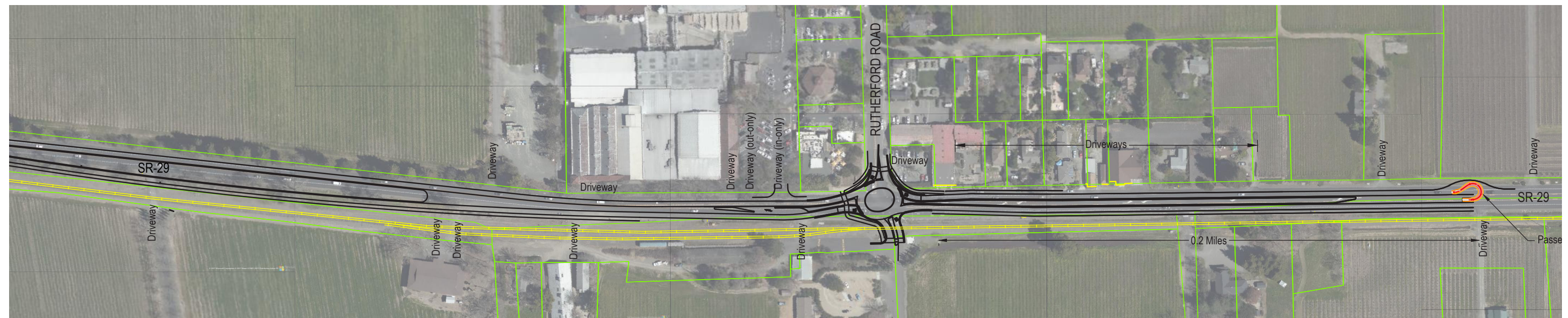
The images below show a subset of the conceptual plans for the three intersections. Note that these plans do not yet incorporate the proposed Vine Trail alignment from Yountville to St. Helena.



Proposed Roundabout Concept at the SR-29 and Madison Street Intersection (Source: NVTA/MTC)



Proposed Roundabout Concept at the SR-29 and Oakville Cross Road Intersection (Source: NVTA/MTC)



Proposed Roundabout Concept at the SR-29 and Rutherford Road Intersection (Source: NVTA/MTC)



Route Description

Trail Configuration

The project goal is to develop a multi-use trail from Yountville to St. Helena that meets Caltrans Class I bikeway standards wherever feasible. Generally, this means a 10'-wide asphalt paved trail with 2'-wide crushed rock shoulders on each side (14'-wide total trail). In many places, existing constraints will require the trail to narrow to 8' of asphalt (the minimum width for a Caltrans Class I bikeway) with the same crushed rock shoulders (12'-wide total trail). Through St. Helena, the trail will be built on local streets for a short distance.

In some agricultural locations, a stabilized crushed rock surface may be used for the trail pavement. This surface has withstood the agricultural equipment well in existing portions of the Vine Trail.

The final design of trail surfaces, striping, signs, and trail amenities such as benches and kiosks will be included during the design phase of the project.

Easements

The Vine Trail organization has a commitment to obtain a trail easement from the Napa Valley Wine Train as-needed for the length of the corridor. Where the trail cannot be fit within the Wine Train right of way, easements from Caltrans and private property owners may be negotiated. Additional temporary easements for grading and construction would be required. The diagrams included in the Cross Sections chapter show some of the various configurations of easements that may be required.

Trail Segments

Throughout this document, the route is mapped and described moving south (Yountville) to north (St. Helena). For planning purposes, this study refers to four segments between Yountville and St. Helena.

- **Segment A** - 6.5 miles, Madison Street to Whitehall Lane

This segment mostly parallels the Napa Valley Wine Train and State Route 29. Trail opportunities, constraints, and alternatives were examined in detail in the 2020 Vine Trail Study. The 2020 study relied on data provided by Reichers & Spence Associates. The current study provides an updated route based on current information.

Segment A is further divided into sub-segments A.1 through A.6.

- **Segment B** - 2.4 miles, Whitehall Lane to Mitchell Drive

This segment follows the west side of State Route 29. South of Lewelling Lane (1.4 miles) the trail would be within the unincorporated portion of Napa County. North of Lewelling Lane (1.0 miles) the trail would be within the City of St. Helena.

- **Segment C** - 0.4 miles, Mitchell Drive to Adams Street

This segment follows local streets within the City of St. Helena.

- **Segment D** - 0.8 miles, Adams Street to Pratt Avenue

This segment follows the Napa Valley Wine Train from Adams Street to Pratt Avenue, and parallels Pratt Avenue from the Wine Train corridor to Main Street (State Route 29).

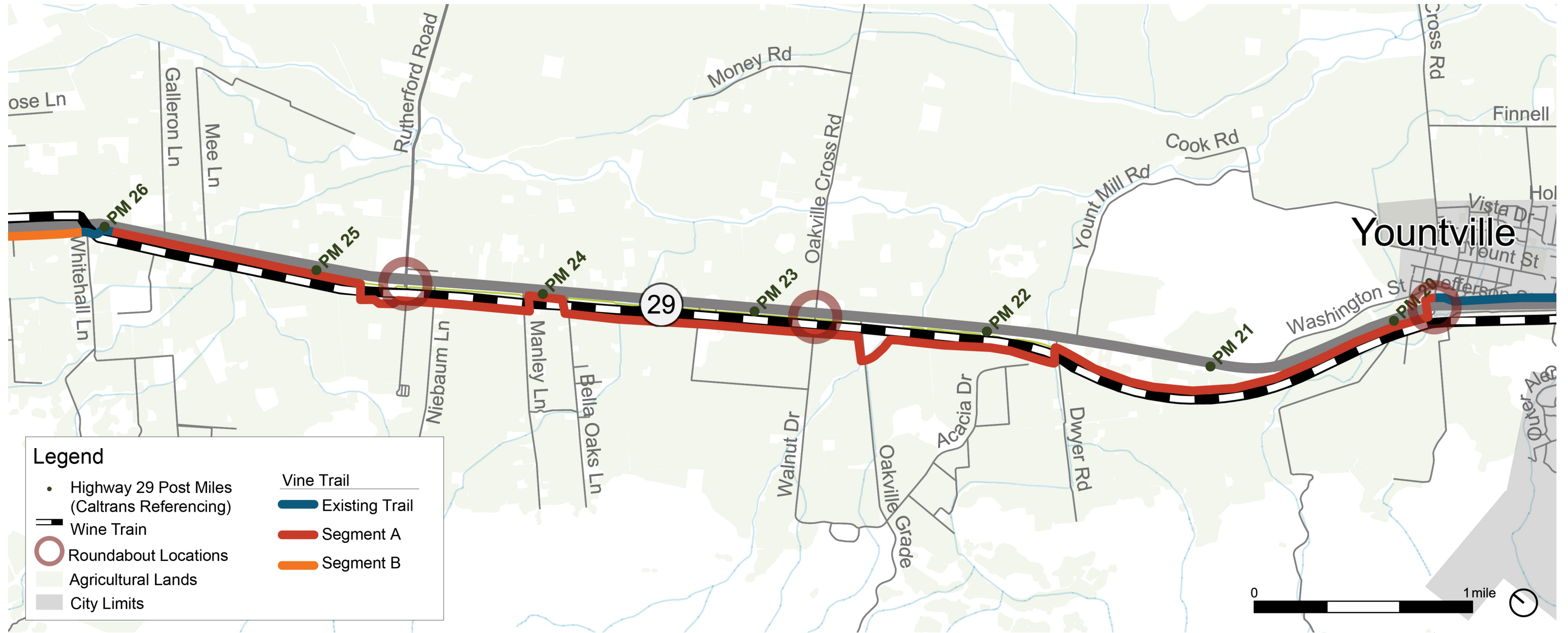


Figure 2: Segment A Overview Map

Segment A.1 (Station A0+00 to A59+00)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
A-01	A 0+50		Madison Street crossing		
A-01	A 0+00	A 3+00	The current Vine Trail ends on the northeast side of the highway south of Madison Street. The new trail needs to connect west across the SR 29/Madison Street intersection. Napa Valley Transportation Authority (NVTA) and the Metropolitan Transportation Commission (MTC) are currently redesigning this intersection to include a roundabout. (See Project Setting chapter)	The current NVTA/MTC roundabout concept plans for the roundabout do not include bike or pedestrian crossings on any of the four legs of the intersection.	The roundabout could include trail crossings on two or four of the legs of the intersection.
A-01	A 2+50		State Route 29 (SR 29) crossing		
A-01	A 3 +00	A 5+50	The trail is located entirely in the Caltrans right-of-way after crossing State Route 29.	There are a handful of existing trees that can mostly be avoided.	There is ample room to located the trail away from the realigned roadway and roundabout.
A-01 A-02	A 5+50	A 11+00	The trail is partially in the Caltrans right-of-way and partially within the rail right-of-way. The trail stays on the eastern side of the rail corridor to avoid impacts to private properties	There is a utility pole located along the fence line less than 20' from the rail centerline at STA 11+00.	There is ample room to located the trail away from the realigned roadway and roundabout.
A-01 to A-07	A 11+00	A 59+00	The trail is located within the rail right-of-way (10' from center line) on the southeast side. zz	There is a very shallow drainage ditches near STA 20+00 that should be easy to re-grade. There is a steep slope near the expanded Caltrans staging area that may require careful grading.	There is potential to develop a trail connection to the expanded Caltrans staging area near STA 48+00.



Intersection of SR 29 and Madison Street where the new trail will connect to existing trail shown on right side of image.



View north at Station A04+50



East side of tracks near Station A40+00 (looking north)

Segment A.2 (Station 59+00 to 112+00)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
A-07 to A-11	A 59+00	A 97+50	The trail is located within the rail right-of-way (10' from center line) on the northeast side.	There are a few trees and utilities around which the trail would be designed.	This alignment avoids most obstacles.
A-11	A 97+50		Rail crossing	This crossing will be combined with the road crossing.	
A-11	A 97+50		Dwyer Road crossing	This crossing will be combined with a rail crossing.	
A-11	A 97+50		The trail crosses the rail line to the southwest side at a controlled crossing at Dwyer Road.		The trail could use an existing controlled crossing.
A-11	A 97+50	A 107+00	The trail continues within the rail right-of-way (10' from center line) on the southwest side.	There is a City of Napa water pump station, utilities, a creek and a cluster of trees in the vicinity.	
A-11	A 100+00		The trail requires a bridge near the water pump station.	A bridge increases the trail cost.	
A-12	A 107+00	A 112+00	The trail is routed southwest onto an agricultural road on private property to avoid constraints.	There are 4 large trees and a perpendicular drainage ditch. A parallel drainage ditch would require a culvert crossing.	The proposed alignment could use private property. Although the vine rows are perpendicular to the trail, they are set back with enough space to accommodate the trail.



Trail proposed on northeast (left side) of rail line



Controlled crossing at Dwyer Road



Waterway to be crossed near pump station



Trail continues on southwest (left side) of rail line

Segment A.3 (Station 112+00 to 161+50)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
A-12 A-13	A 112+00	A 121+00	The trail continues within the rail right-of-way (10' from center line) on the southwest side.	There is a water vault and two trees.	The alignment is generally without obstructions. The "Welcome to Napa" sign may be relocated.
A-13 A-14	A 121+00	A 125+50	The trail is routed southwest onto private property to avoid a drainage ditch.	There is a drainage ditch within the rail right-of-way.	The proposed alignment could use private property. Although the vine rows are perpendicular to the trail, they are set back with enough space to accommodate the trail.
A-14	A 125+50	A 129+00	The trail continues within the rail right-of-way (10' from center line) on the southwest side.		
A-14	A 129+00	A 130+50	The trail is routed southwest onto private property to cross a drainage ditch.	Crossing the drainage ditch would require a bridge and use of private property.	
A-14 A-15	A 130+50	A 133+50	The trail continues within the rail right-of-way (10' from center line) on the southwest side.		
A-15 A-16	A 133+50	A 148+00	The trail is routed southwest onto private property away from the rail line using agricultural roads.		The alignment uses existing agricultural roads and avoids placement near residential properties.
A-16	A 148+00		Oakville Grade road crossing (mid-block)		
A-17	A 148+00	A 156+50	The trail is routed along the shoulder of Oakville Grade, partially on private property.		
A-18	A 156+50	A 161+50	The trail uses an existing Napa Valley Vine Train parcel to avoid a ditch.	A ditch on the west side of the tracks can be avoided by using the parcel to the west.	



The existing "Welcome to Napa Valley" sign is a popular destination.



Approximate location of mid-block trail crossing of Oakville Grade (Google Streetview)

Segment A.4 (Station 161+50 to 216+00)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
A-18 A-19	A 161+50	A 167+00	Trail uses Wine Train property.	Numerous mature trees, including redwoods, exist within the rail right-of-way. Trail may need to narrow and meander in order to avoid existing trees. Some trees may need to be removed.	
A-19	A 167+00	A 168+00	Walnut Lane (Oakville Cross Road Roundabout) crossing		Trail would cross Walnut Lane using new crossing developed as part of the Oakville Cross Road roundabout.
A-19	A 168+00	A 170+50	The trail uses Wine Train property within the Oakville Pump Service area.	There is an existing building near the rail right-of-way.	The area will be redeveloped as the Napa Grape Growers Administration Offices allowing access by bicyclists and pedestrians and the trail to be designed as part of the development.
A-19 to A-21	A 170+50	A 183+50	The trail continues within the rail right-of-way (10' from center line) on the southwest side.	There are trees near the alignment, an adjacent drainage ditch.	The alignment stays within the rail right-of-way.
A-21 to A-24	A 183+50	A 216+00	Because the rail right-of-way narrows at this point, the trail continues on adjacent private agricultural roads.	The rail right-of-way is very narrow and ditches are located along the southwest side of the rail corridor requiring the trail to be shifted southwest onto private properties. Four private driveway crossings would be required.	This reach could use private property and existing agricultural roads.
A-24	A 215+50		The trail crosses a drainage ditch, requiring a bridge.		



View of front of the Oakville Pump Service



View south of Walnut Lane

Segment A.5 (Station A216+00 to A276+00)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
A-24 A-25	A 216+00	A 227+00	The trail is located within the rail right-of-way (more than 10' from center line) on the southwest side in a wider corridor, but may need to shift to avoid constraints.	There is a driveway and a public road (Bella Oaks Lane) which would need safe crossings. Parts of the alignment are constrained by 1 - 2' drainage ditches which can potentially be realigned. A few large trees are located in the corridor, which may be avoided by through careful design. There are some utilities and a structure in the route near Bella Oaks Lane.	This reach has a wider rail right-of-way which allows flexibility.
A-25	A 227+00		Rail crossing	This crossing will be combined with the road crossing.	
A-25	A 227+00		Bella Oaks Lane crossing	This crossing will be combined with a rail crossing.	
A-25 A-26	A 227+00	A 238+00	The trail crosses to the east side of the rail line and is located between the rail line and the highway.	Private property constraints make the alignment on the west side of the rail tracks infeasible at this time. A drainage ditch between the highway and the rail line restrict the potential width of the trail in this location.	
A-27	A 238+00		Rail crossing	This crossing will be combined with the road crossing.	
A-27	A 238+00		Manley Lane crossing	This crossing will be combined with a rail crossing.	
A-27 A-28	A 238+00	A 248+00	Due to a narrow rail right-of-way the trail is aligned partially within the rail right-of-way and partially on private property veering further onto private property at Manley Lane to avoid obstructions.	The alignment is constrained by drainage ditches and some utilities, Careful design of the trail in this location could reduce impact to these elements.	This reach straddles the rail corridor line, encroaching onto private property.
A-28 A-29	A 248+00	A 259+50	The trail is located within the rail right-of-way (10' from center line) on the southwest side, but may need to shift to avoid constraints.	There is a drainage ditch (1-2' and 3 - 5' deep) and trees along the southwest side of the rail right-of-way. An infiltration pipe system may be required. Two driveway/agricultural road crossings are required.	The trail alignment is in the rail right-of-way and creates a connection to the St Helena Nursing School.
A-29	A 259+50		Niebaum Lane crossing		
A-29A	A 259+50	A 266+00	Due to a narrower rail right-of-way, the trail will be partially on private property in this area.	The narrower right-of-way will require the trail to be partially within private property.	An existing drainage ditch would provide a buffer between the trail and the vineyards.
A-29 A-30	A 266+00		Trail will cross a private driveway.		Alignment of the trail crossing will be incorporated into the proposed Rutherford Roundabout.
A-30	A 266+00	A 276+00	The trail would use be routed through the Rutherford Depot property.	Three sets of tracks and the existing Rutherford Depot building are potential obstructions. Two driveway crossings would be required.	Future development of the Rutherford Depot can incorporate the trail design.

Segment A.6 (A276+00 to end)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
A-31 to A-33	A 276+00	A 296+00	The trail alignment stays within the rail right-of-way on the northeast side between the rail line and the highway.	Two driveway crossings would be required. The trail will be relatively close to the realigned roadway.	The trail alignment can be coordinated with the plans for the Rutherford Roundabout and divided highway.
A-31	A 277+00		The trail alignment crosses to the northeast side of the rail.	The existing crossing at a private driveway is uncontrolled.	
A-33 to A-35	A 296+00	A 316+00	The trail alignment stays within the rail right-of-way on the northeast side between the rail line and the highway.	There are numerous trees, utility conflicts (water valves and drain inlets), and drainage ditches up to 3-feet deep. A pipe would have to be installed in the ditch and the water conveyed south to Bale Slough, and the trail built over the pipe with inlets for drainage. Three driveways would be crossed including a large driveway at Grgich Winery which could be redesigned to enhance safety.	On the southwest side of the rail line, the Wine Train platform, improvements at Grgich Winery, and drainage ditches justify moving the trail to the northeast side.
A-34	A 310+00		Trail crosses Bale Slough.	The trail includes a new bridge (or cantilevered trail off the existing rail bridge).	
A-35 to A-37	A 316+00	A 341+25	The trail alignment continues on the northeast side partially on the rail and partially on Caltrans right-of-way.	There is a ditch on or adjacent to the trail alignment. This would have to be relocated or put into an infiltration pipe system.	The trail is relatively close to the highway but there is a wide shoulder with large trees that help buffer and shade the trail.
A-38	A 342+00		Rail crossing		
A-38 A-39	A 341+25	Whitehall Lane	The trail alignment uses the existing green bike lane and controlled rail crossing on the northeast side between the rail line and the highway.	The Napa County Bicycle Coalition and Caltrans may be concerned about converting the existing bike lane into a Class I path.	The green bike lane is 8' wide and could potentially be converted into a 2-way Class I path. A barrier may be required near the transition (see illustration below)



Location of new bridge or cantilevered bridge



Existing green bike lane



Existing green bike lane

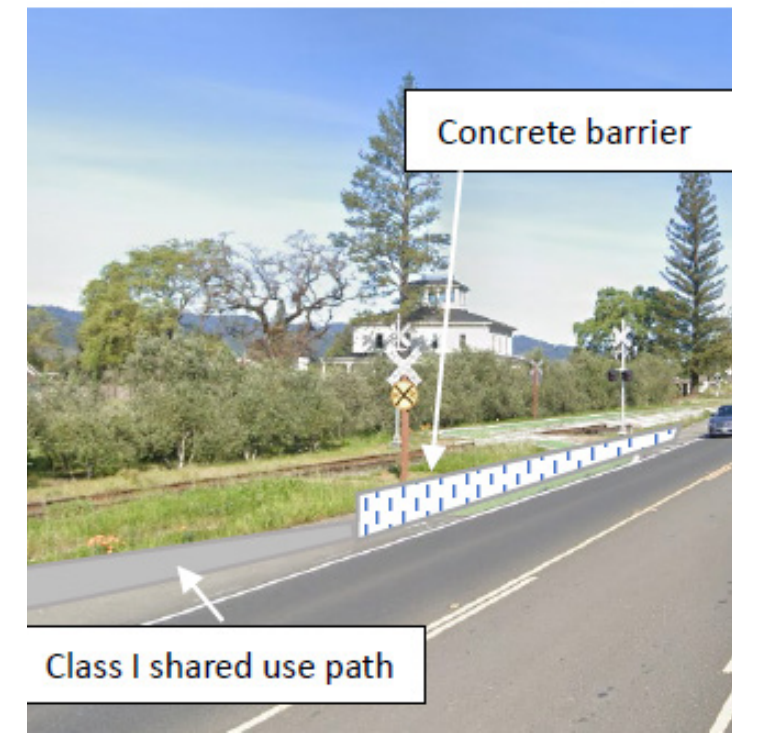


Illustration of transition to Shared Use Path



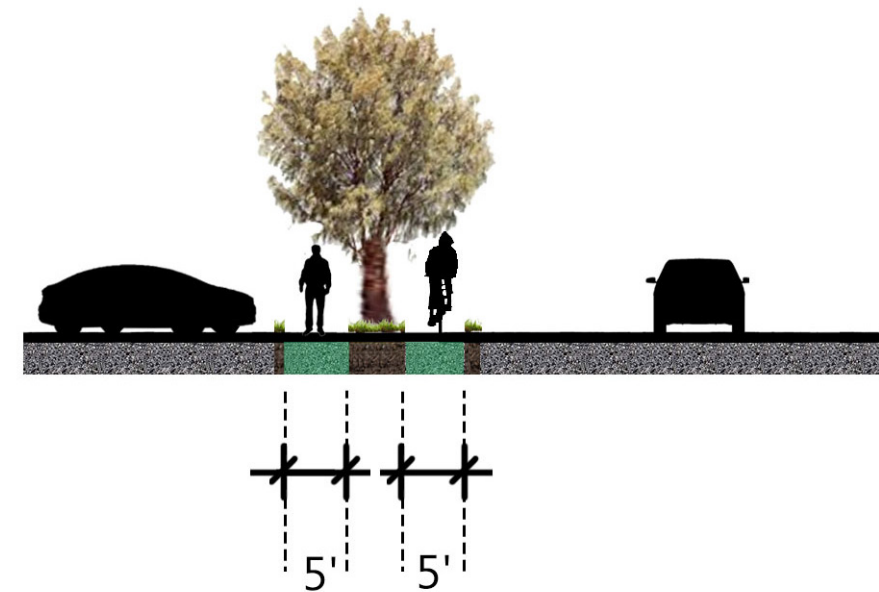
Figure 3: Segment B, C, and D Overview Map

Segment B.1: Whitehall Lane to W Zinfandel Lane (Station B 0+00 to B27+00)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
B-01	B 0+50		Whitehall Lane crossing		
B-01	B 0+00	B 2+50	Trail crosses Whitehall Lane in the Caltrans and County R/W.	Markings and signage will be required for a safe crossing.	This is a low-volume road with sufficient room for a trail crossing.
B-01 B-02	B 2+50	B 6+80	Trail would follow the west shoulder of SR 29.	The trail would require some encroachment into the adjacent private properties.	In most places, there is sufficient space for the trail adjacent to the roadway.
B-02	B 4+50			To avoid a drainage ditch, the trail would be routed slightly further west in this location.	
B-02	B 6+70			A mature oak tree in this location would limit the width of the trail.	The trail could be split with one way trail traffic on each side of the tree (see below).
B-02 to B-04	B 6+80	B 20+00	Trail would follow the west shoulder of SR 29.	There are a handful of mature trees along the roadway in this area.	There typically is sufficient space to route the trail to the east or west of the trees without impacting agricultural operations.
B-04 B-05	B 20+00	B 24+00		The location of existing mature trees would require the trail to be routed to the west of the trees, which may impact a few vines.	
B-05	B 24+00	B 27+00		A raised utility box with bollards surrounding it creates a pinch point for the trail. The bollards, utility box, and/or some vines may need to be removed.	
B-05	B 27+00		W Zinfandel Lane crossing		



Tree and landscaping in front of Whitehall Lane Vineyards (Google Street View)



Cross section illustrating split trail at existing oak tree.

Segment B.2: Zinfandel Lane to Inglewood Avenue (Station B 27+00 to B 54+50)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
B-05	B 27+00		W Zinfandel Lane crossing		
B-05 to B-08	B 27+00	B 49+50	Trail would continue to follow the west shoulder of SR 29. For most of this segment the highway has wide asphalt paved shoulders and an approximately 10-foot wide unpaved frontage/agricultural road between the highway and adjacent vineyards The alignment is characterized primarily by vineyards on the west side of the SR 29.	There may be portions of this segment that will need to encroach on private property to provide sufficient distance from the active travel lanes on SR 29. A center turn lane was added in 2016, widening the roadway and reducing the space available for the trail within the Caltrans R/W.	There typically is sufficient space to route the trail to the west of the highway without impacting agricultural operations.
B-05	B 29+50	B 31+00		Two mature oak trees may impact the trail alignment.	There appears to be sufficient space to route the trail around the trees with minimal impacts to the adjacent private property.
B-07	B 40+00	B 41+50	The trail passes in front of Delectus Vineyard Tasting Room.	Landscaping, electrical utility poles, and pedestrian street light fixtures in front of the tasting room would need to be addressed.	The trail could be aligned on the highway side of these elements, split around them, or some utilities could be adjusted.
B-07 B-08	B 45+90	B 49+50		Vineyards are perpendicular to the proposed trail, requiring more space for vineyard maintenance vehicles to turn around and further reducing the available space for the trail.	Detailed topographic and site survey may reveal sufficient space for the trail in this location without impacting agricultural operations.
B-08	B 49+50	B 54+50	This short segment is comprised of three properties immediately south of Inglewood Avenue, including a storage facility, gas station, and office park. A wide sidewalk extends across the frontage of all three properties.	Each of the three properties has a wide driveway that the trail would need to cross.	The wide sidewalk could be converted to a Class I trail.
B-09	B 54+50		Inglewood Avenue crossing		



South of Delectus, a shallow ditch between the highway and the vineyards could be shifted for the trail.



The wide sidewalk south of Inglewood could be adapted for trail use.

Segment B.3: Inglewood Avenue to Sulphur Springs Avenue (Station B 54+50 to B 83+75)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
B-09	B 54+50		Inglewood Avenue crossing		
B-09	B 54+50	B 61+30	The trail would be routed through three properties with four existing visitor-serving businesses (currently Vine Cliff Tasting Room, Flora Springs Tasting Room, Gary's Wine and Marketplace/former Dean & DeLuca, and PRESS Restaurant).	In this location, Highway 29 has a center turn lane and approximately 12' shoulders with no sidewalk. An approximately 3-foot wide planting area fronts the parking lot. The parking is arranged with two rows of 90-degree/perpendicular spaces. The businesses are located to the west of the parking. Several utilities, including a large backflow preventer, are located in the planting area adjacent to the highway. A curb separates the southern-most parking area from the other parking areas. This would be altered to allow trail users to pass through.	Previous studies have examined reorganizing the parking lots to provide space for the trail adjacent to the highway or re-routing the trail behind the businesses. These concepts are currently infeasible, but may be revisited in the future.
B-10	B 61+30	B 70+60	The trail would stay on the west side of SR 29 in front of the existing HALL Wines St. Helena and the former mobile home park.	The existing narrow sidewalk is not wide enough to accommodate trail use.	The existing sidewalk could be widened to accommodate the trail. Future development on the former mobile home park property could incorporate the trail.
B-11	B 70+60	B 75+50	The trail would continue on the west side of SR 29 in front of the Sutter Home Winery properties, which include a large parking area between SR 29 and the business.	The 2016 road widening further reduced the already narrow shoulders in this area.	The existing parking areas may be able to be re-configured to provide room for the trail between the parking and the highway.
B-11	B 75+50		Lewelling Lane crossing		
B-11	B 75+50			Mature juniper trees flank the entrance to Lewelling Lane.	The trail could maintain its alignment on the east side of the trees if it was narrowed to 8 feet here.
B-12	B 75+50	B 83+75	The trail would continue on the west side of SR 29 in front of the Harvest Inn and Harvest Table property.	The Harvest Inn property is fronted by a row of mature trees and a low stone wall. The 2016 road widening project reduced the space between the driving lanes and these trees.	There appears to still be sufficient space to fit the trail adjacent to the trees.
B-13	B 83+75		Sulphur Springs Avenue crossing		



View of the parking area in front of the businesses north of Inglewood.



There appears to be sufficient space for the trail in the wide shoulder near Harvest Inn.

Segment B.4: Sulphur Springs Avenue to Grayson Avenue (Station B 83+75 to B107+50)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
B-13	B 83+75		Sulphur Springs Avenue crossing		
B-13	B 83+75	B 91+40	The trail would continue on the west side of SR 29 in front of four commercial properties (currently: Sager Ford/formerly Zumwalt Ford, Golden Harvest Restaurant, Bright Event Rentals, and El Bonita Motel). The car dealership and restaurant have paved parking between the business and the highway. The rental property has an unpaved parking area with shrubs and junipers. The motel's frontage includes mature trees, landscaping, and parking.	The 2016 road widening project further narrowed the available space for a trail in this area.	Potential alternative routes on side streets were considered in previous studies. Despite the constraints in this area, constructing a detour that routes the trail away from SR 29 is not desirable. Trail users tend to take the most direct route regardless of the designated route. The preferred route is along SR 29.
B-13	B 84+00	B 87+40		Several surface utility vaults in front of the car dealership and the restaurant would need to be reset or raised because they are in the proposed alignment	
B-13	B 86+10	B 87+40			An existing sidewalk can be expanded for trail use.
B-13	B 88+90	B 90+50		A row of mature trees, landscaping, and a fence constrain the available space for a trail between the two motel entrances.	
B-13	B 90+75	B 91+00		A raised planter and street light pole restrict available space for the trail.	The planter and pole could be moved, or the trail could be routed around them.
B-14	B 91+40		El Bonita Avenue crossing		
B-14 B-15	B 91+40	B 102+90	The trail would continue on the west side of SR 29. In this stretch, the highway is fronted by a concrete curb, a row of mature trees, and an unpaved agricultural road. A hotel (currently Vineyard Country Inn, previously Vintage Country Inn) located north of El Bonita Avenue is accessed off of El Bonita Avenue. The remainder of this stretch fronts on a vineyard.	The mature trees restrict the potential location of the trail on the east side of the trees. The existing unpaved agricultural road appears to be low lying with evidence of water pooling.	The existing unpaved agricultural road west of the trees could be adapted for trail use. The trail could be designed to improve drainage in this area.
B-15	B 102+90	B 107+50	The trail will continue on the west side of SR 29 in front of the St. Helena Unified School District (SHUSD) property. This property is fronted by a 6-foot wide sidewalk (added in the 2016 road widening project), a row of mature trees, a parking area, a stone wall, and a large landscaped area.	There is no shoulder in this stretch, and therefore no room to expand the sidewalk to accommodate the trail. The mature trees and stone wall limit the ability to reconfigure the parking, which was previously studied.	The trail may be routed on a combination of the sidewalk and through the parking area.
B-15	B 107+50		Grayson Avenue crossing		



A row of mature trees, landscaping, and a fence constrain the available space for a trail near the El Bonita Motel



Trees line the frontage and unpaved walkway, looking north from the corner of El Bonita Avenue and SR 29

Segment B.5: Grayson Avenue to Mitchell Drive (Station B 107+50 to B 129+50)

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
B-15	B 107+50		Grayson Avenue crossing		
B-16 B-17	B 107+50	B 116+50	The trail would continue on the west side of SR 29 on the existing sidewalk, which fronts a variety of businesses.	The sidewalk ranges in width from approximately 5-feet to 9-feet. Several mature trees and light posts are within the sidewalk footprint. Landscaping and parking between the sidewalk and the businesses complicate potential widening to the west. There is no shoulder between the sidewalk and the highway.	In many places, the existing sidewalk can be used for the trail alignment. Parking and landscaping can likely be modified to accommodate the trail in other locations.
B-17	B 116+50		Vidovich Avenue crossing		
B-17	B 116+50	B 120+50	The trail would continue on the west side of SR 29 on the existing sidewalk, which fronts a variety of businesses.	The sidewalk ranges in width from approximately 5-feet to 9-feet. Several mature trees and light posts are within the sidewalk footprint. Landscaping and parking between the sidewalk and the businesses complicate potential widening to the west. There is no shoulder between the sidewalk and the highway.	In many places, the existing sidewalk can be used for the trail alignment. Parking and landscaping can likely be modified to accommodate the trail in other locations.
B-17	B 120+50		Charter Oak Avenue crossing		
B-17 B-18	B 120+50	B 129+50	The trail would continue on the west side of SR 29 on the existing sidewalk, which fronts a variety of businesses.	The sidewalk ranges in width from approximately 5-feet to 9-feet. Several mature trees and light posts are within the sidewalk footprint. Landscaping and parking between the sidewalk and the businesses complicate potential widening to the west. There is no shoulder between the sidewalk and the highway.	In many places, the existing sidewalk can be used for the trail alignment. Parking and landscaping can likely be modified to accommodate the trail in other locations.
B-18	B 123+50	B 124+50		There is a gap in the sidewalk in this area between two driveways and in front of the Gott's Roadside restaurant.	There is sufficient space in front of the restaurant to route the trail. The driveways could be narrowed and reconfigured to improve safety and circulation.
B-18	B 126+10	B 127+20		The pedestrian portion of the existing Sulphur Creek Bridge is narrow (approximately 6-feet wide).	
B-18	B 129+50		Mitchell Drive (end of Segment B)		



Existing Sulphur Creek Bridge



Sidewalk in front of Gott's Roadside (formerly Taylor's Refresher) in St. Helena

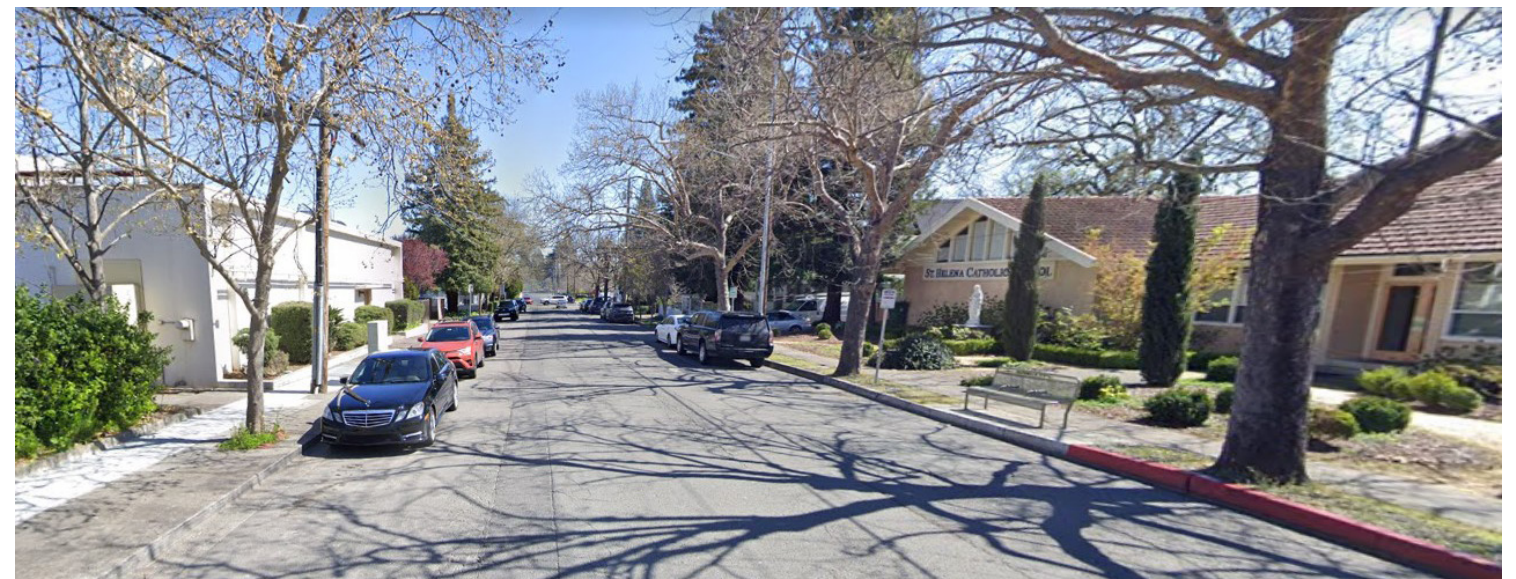
Segment C: Mitchell Drive to Railroad Avenue

This segment was studied in detail by BKF Engineers. Additional information is available from Napa County staff.

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
C-01	C 0+00		Mitchell Drive and Main Street intersection		
C-01	C 0+00	C 3+00	The trail would be routed along Mitchell Drive as a combination of an in-street bikeway and sidewalk.		
C+02	C 3+00		Oak Avenue and Mitchell Drive intersection		
C-02	C 3+00	C 7+50	The trail would be routed along Oak Avenue as a combination of an in-street bikeway and sidewalk.		
C-02	C 7+50		Oak Avenue and Spring Street intersection		
C-02 C-03	C 7+50	C 11+50	The trail would continue along Oak Avenue as a combination of an in-street bikeway and sidewalk.		
C-03	C 11+50		Oak Avenue and Tainter Street intersection		
C-03	C 11+50	C 16+00	The trail would continue along Oak Avenue as a combination of an in-street bikeway and sidewalk.		
C-04	C 16+00		Adams Street and Oak Avenue intersection		
C-04	C 16+00	C 19+50	The trail would be routed along Adams Street as a combination of an in-street bikeway and sidewalk.		
C-04	C 19+50		Adams Street and Main Street intersection		
C-04	C 19+50	C 23+00	The trail would continue along Adams Street as a combination of an in-street bikeway and sidewalk.		
C-04	C 23+00		Adams Street and Railroad Avenue intersection		
C-04	C 23+00	C 23+50	The trail would continue along Adams Street as a combination of an in-street bikeway and sidewalk.		
C-04	C 23+50		Rail line crossing		



View north-west on Mitchell Drive in St. Helena (Google Streetview)



View south-west on Oak Ave near the St. Helena Catholic School (Google Streetview)

Segment D: Railroad Avenue to Pratt Avenue/Main Street

This segment was studied in detail by BKF Engineers. Additional information is available from Napa County staff.

Map	Start	End	Proposed Trail Alignment Description	Constraints	Opportunities
	D 0+00		Adams Street crossing		
	D 0+00	D 12+25	Trail within Wine Train R/W		
	D 12+25		Fulton Lane crossing		
	D 12+25	D 22+50	Trail within Wine Train R/W		
	D 22+50	D 26+50	Trail primarily within Wine Train R/W.	Due to limited R/W width in this area, the trail may encroach into adjacent private property.	
	D 26+50	D 30+00	Trail within Wine Train R/W (limited width)	Due to limited R/W and constraints on adjacent property, the trail may have to be narrowed and require bicycle riders to walk.	
	D 30+00		Rail line crossing		
	D 30+00		Pratt Avenue crossing		
	D 30+00	D 43+20	The trail will be along the west side of Pratt Avenue with an additional pedestrian sidewalk on the east side of Pratt Avenue.		
	D 43+20		Main Street (SR 29) end of project		



View south along the Wine Train corridor from Fulton Lane (Google Streetview)



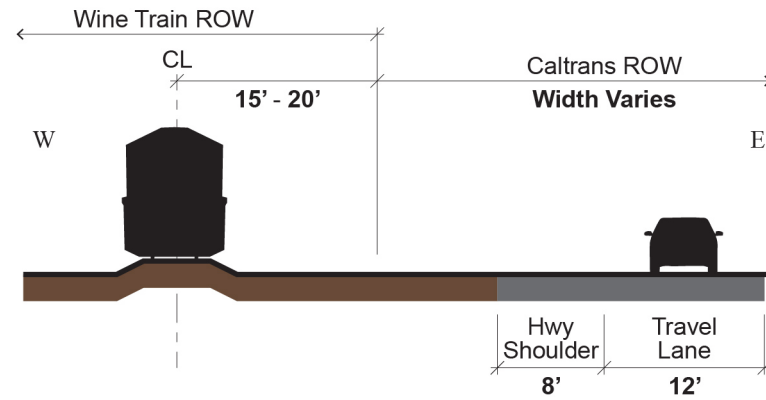
View south-west on Pratt Avenue (Google Streetview)



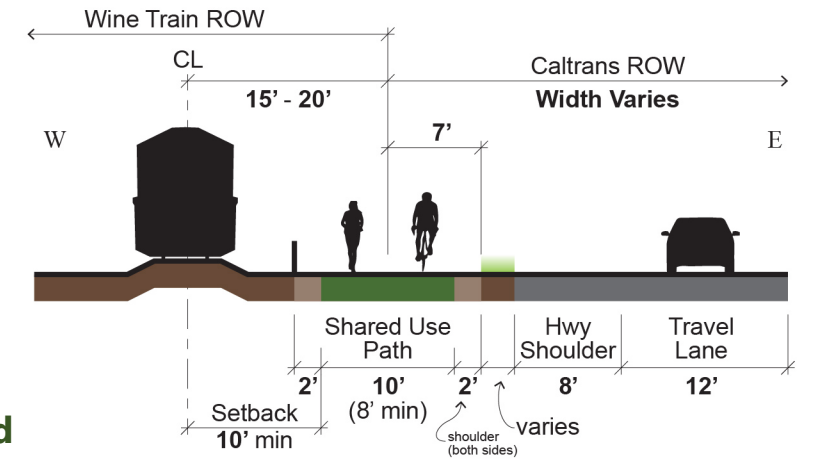
The cross sections on the following pages represent schematic illustrations of potential trail configurations as they relate to adjacent features and property lines.

A' - A' Section

Existing

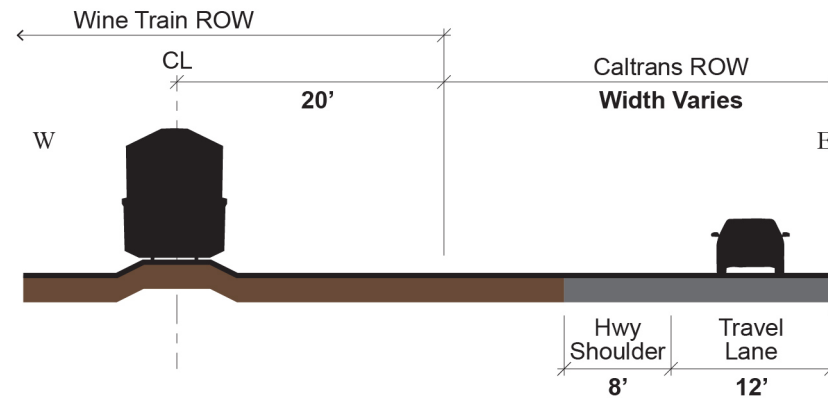


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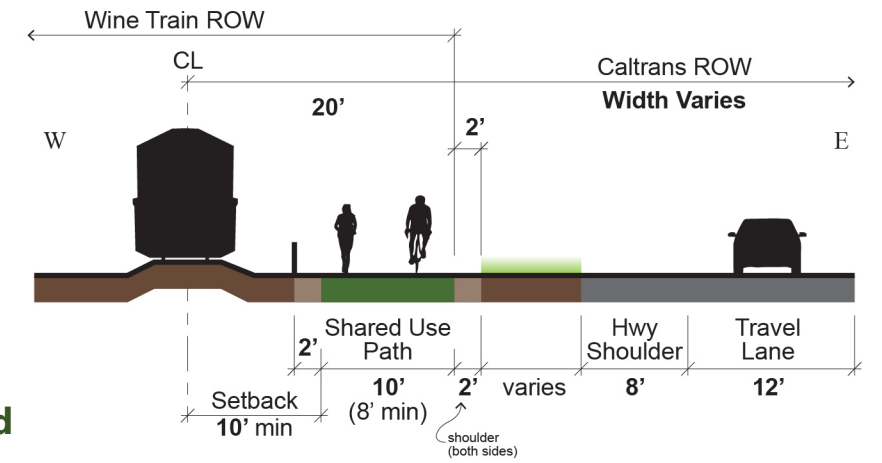


B' - B' Section

Existing

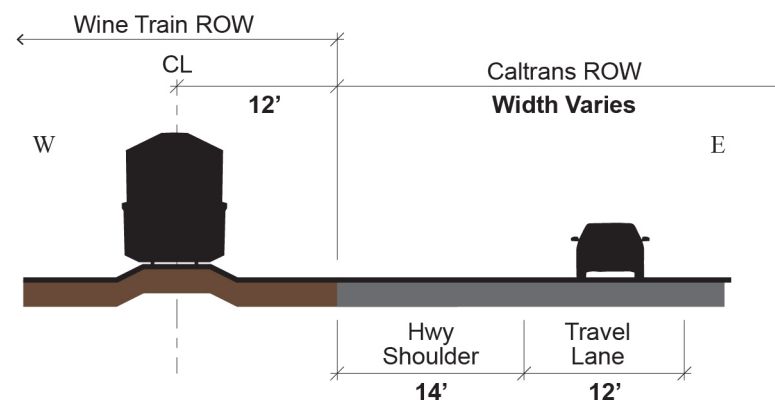


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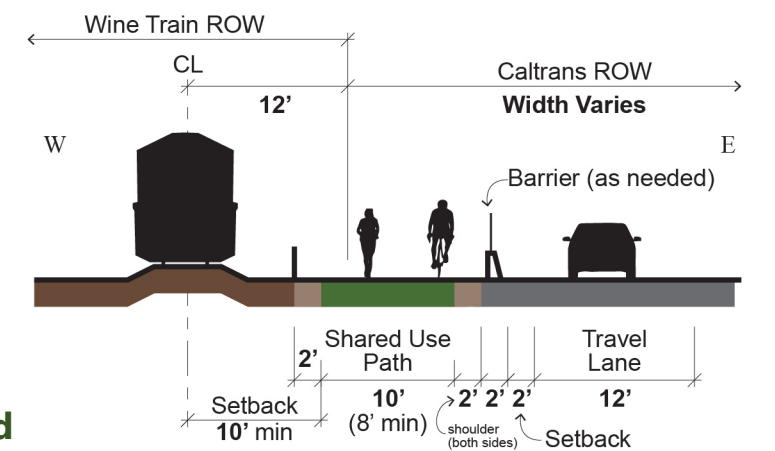


C' - C' Section

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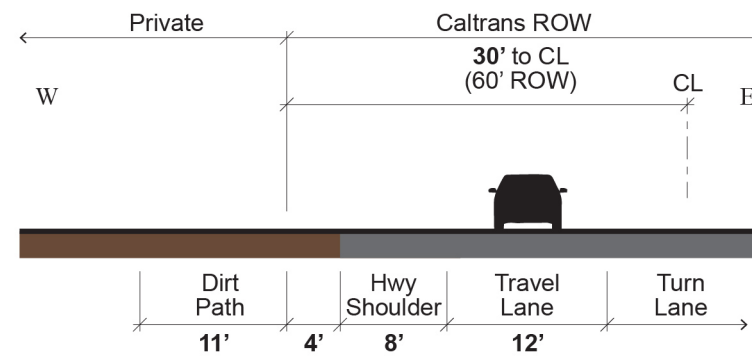


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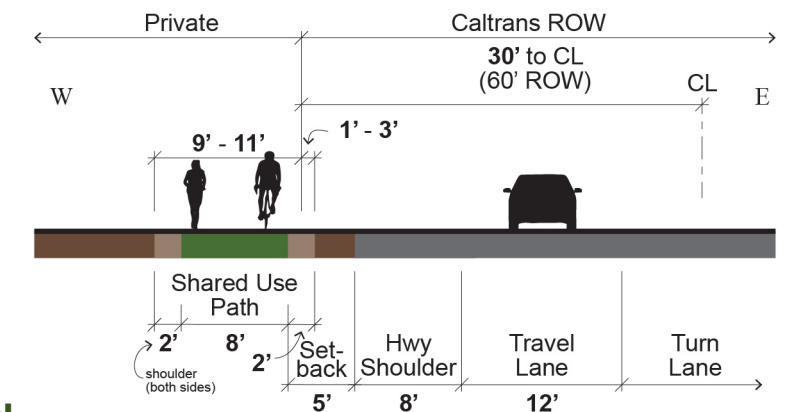


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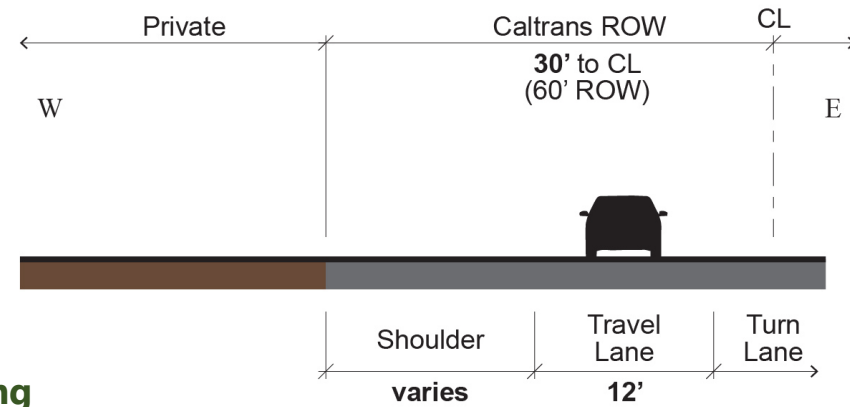


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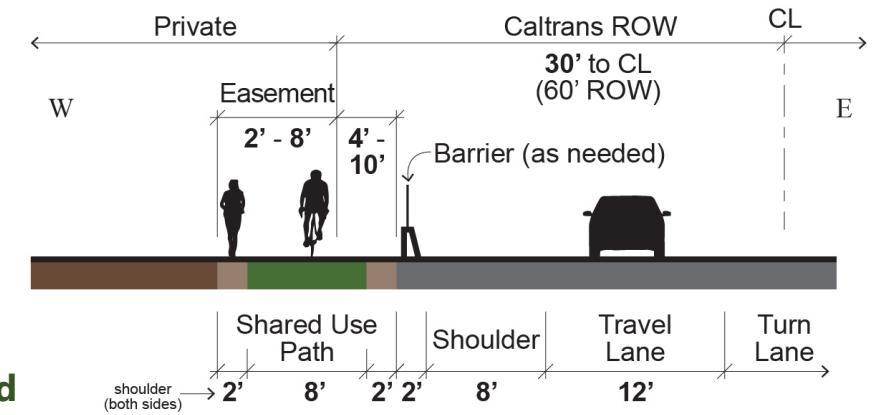


E' - E' Section

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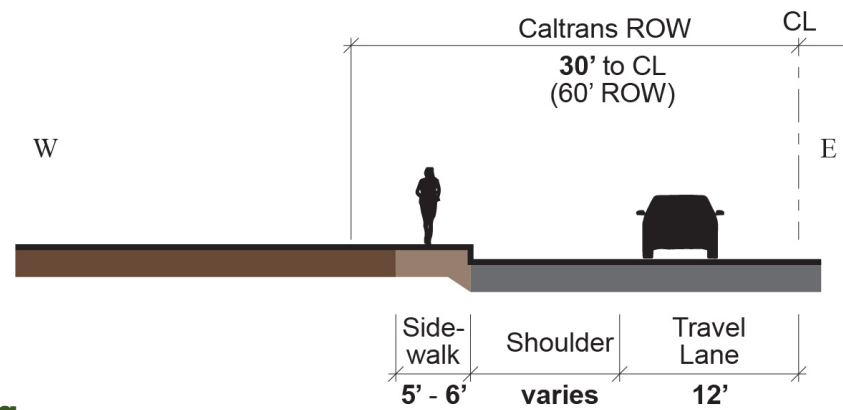


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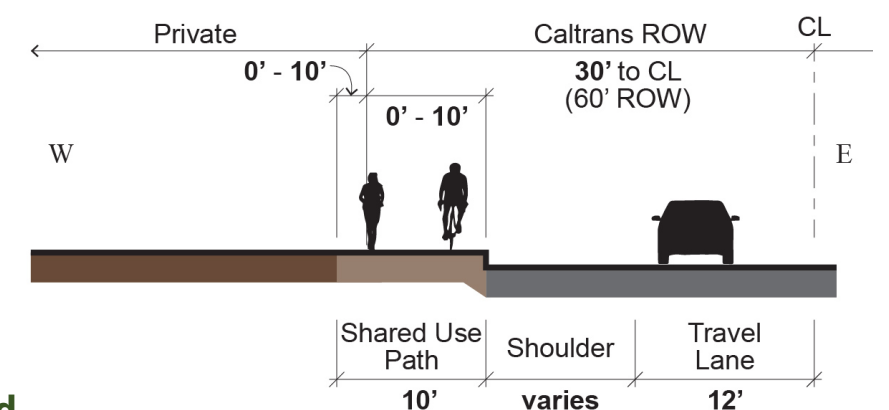


F' - F' Section

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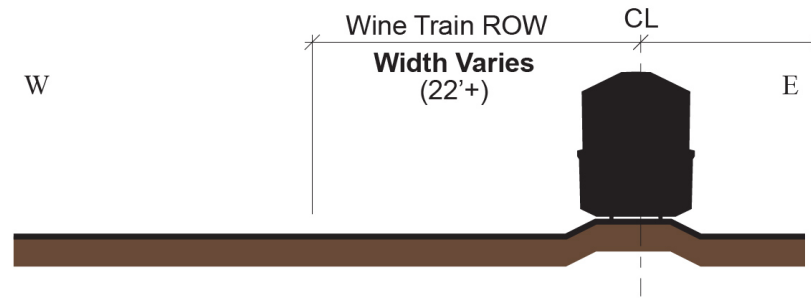


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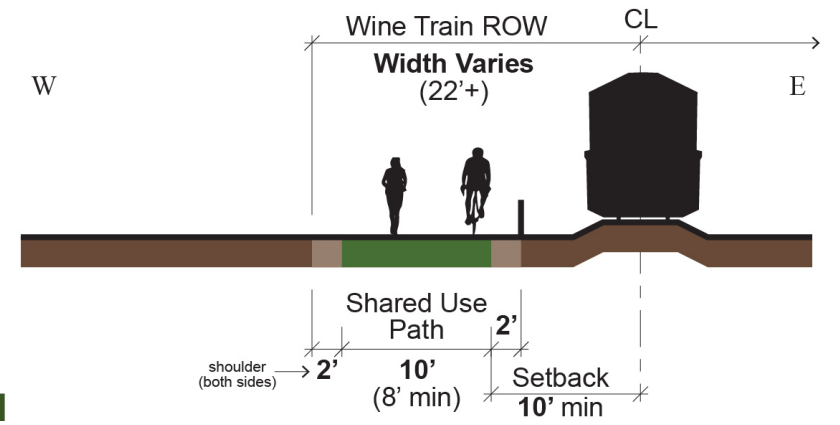


G' - G' Section

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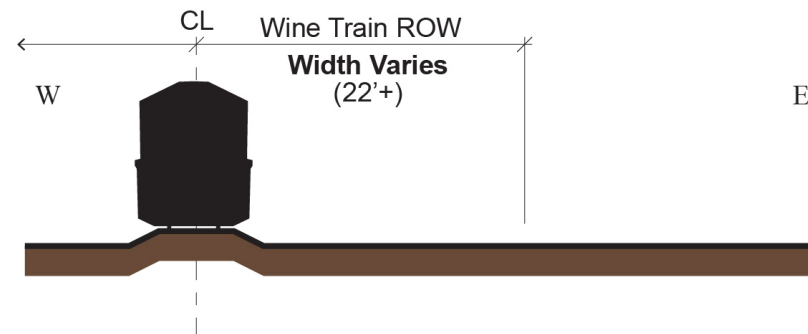


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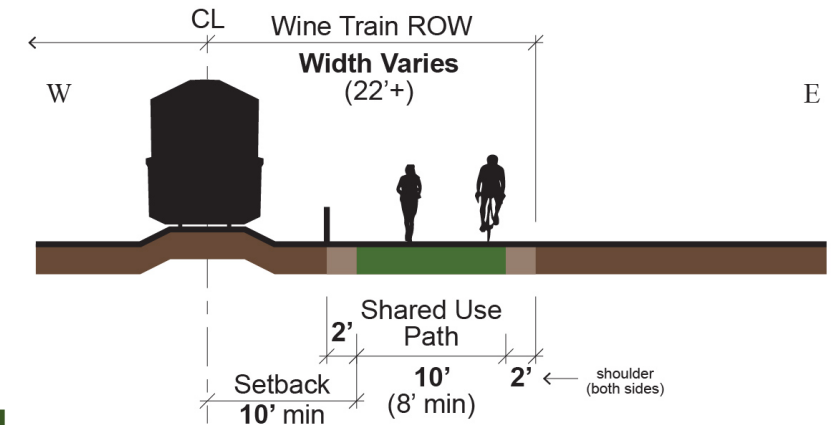


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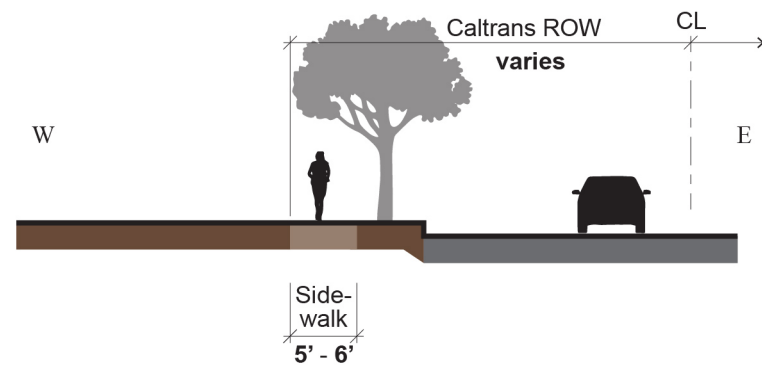


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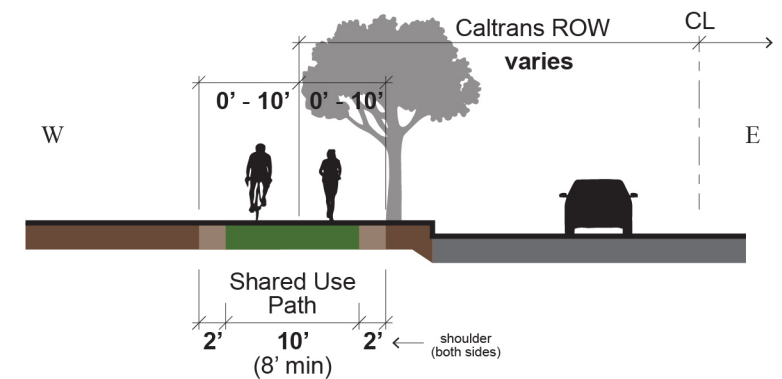


I' - I' Section

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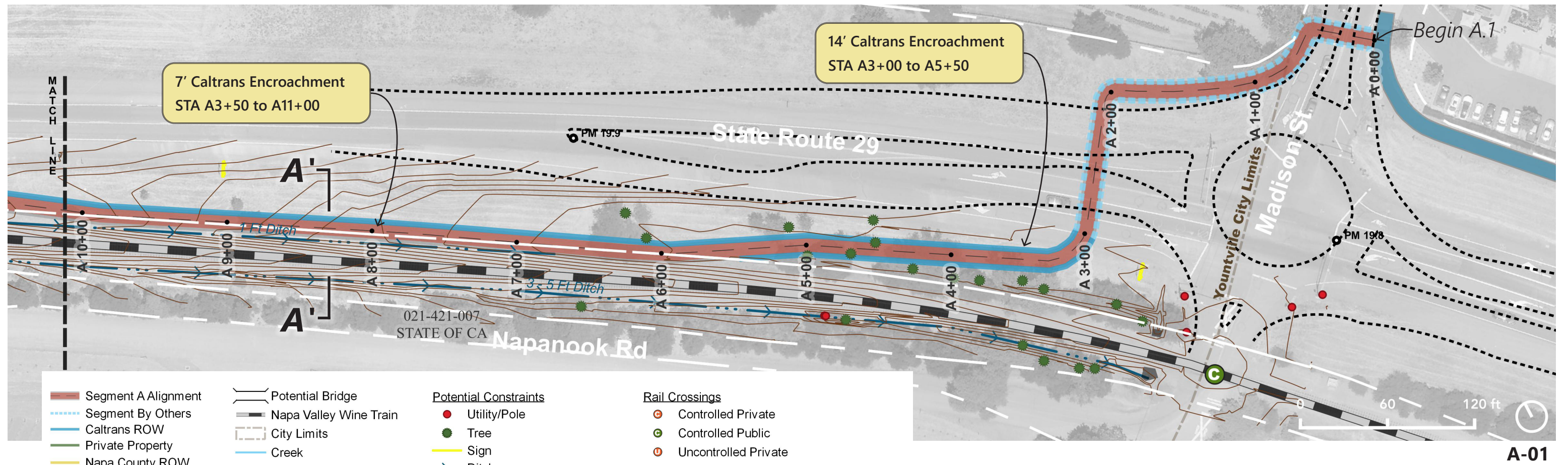


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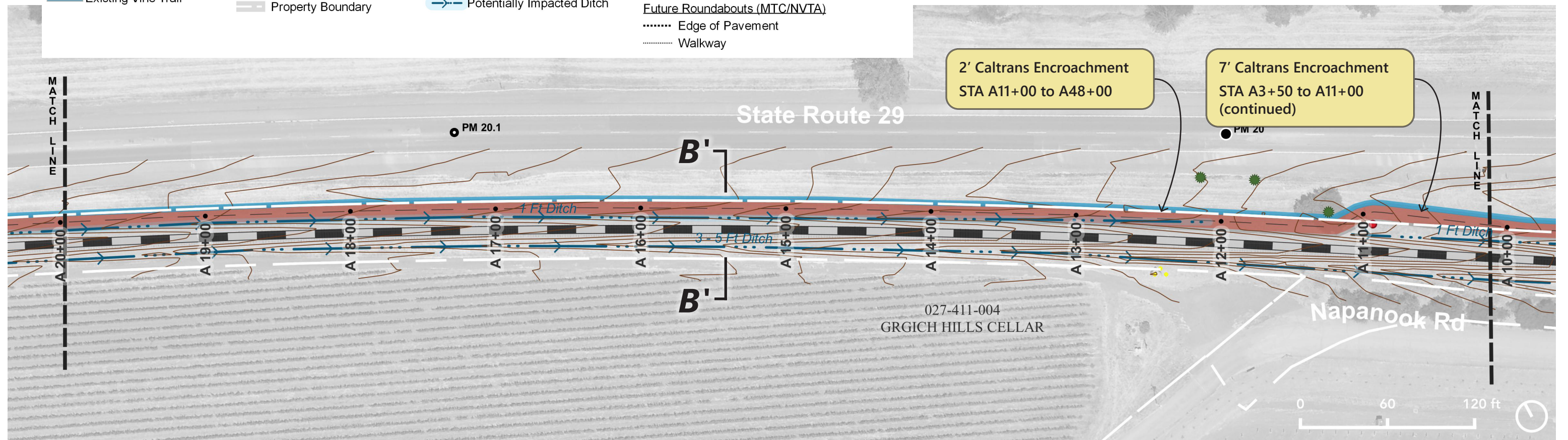




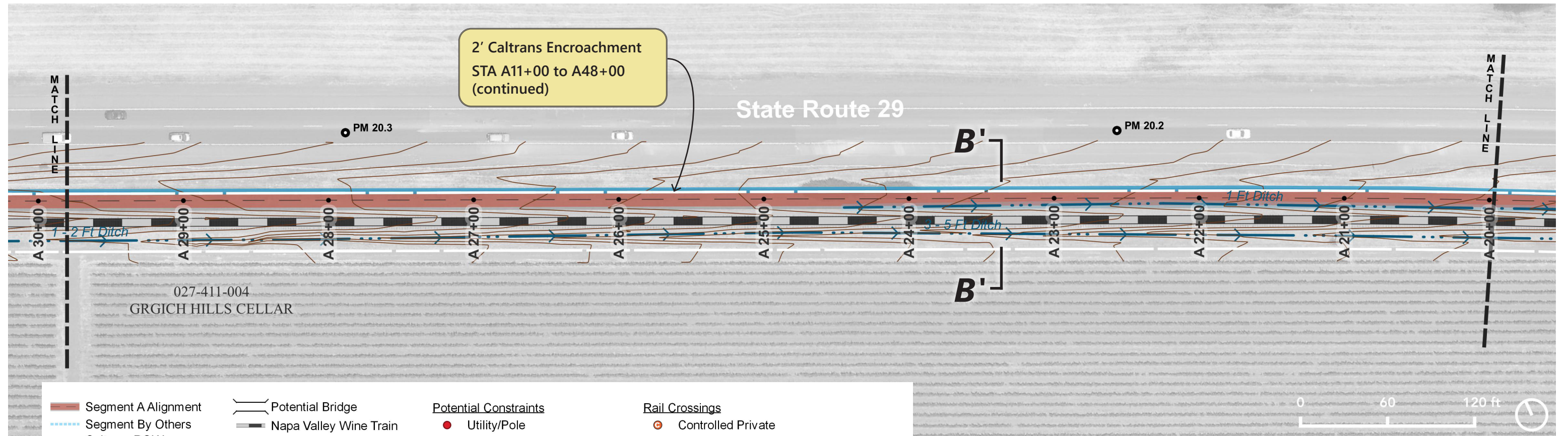
The detail maps on the following pages show the proposed trail alignment from south to north (Yountville to St Helena). Each map is oriented to be roughly parallel with the trail. Stationing numbers increase south to north and read right to left on the page. The stationing and map numbers reset for each Segment, A, B, C, and D.



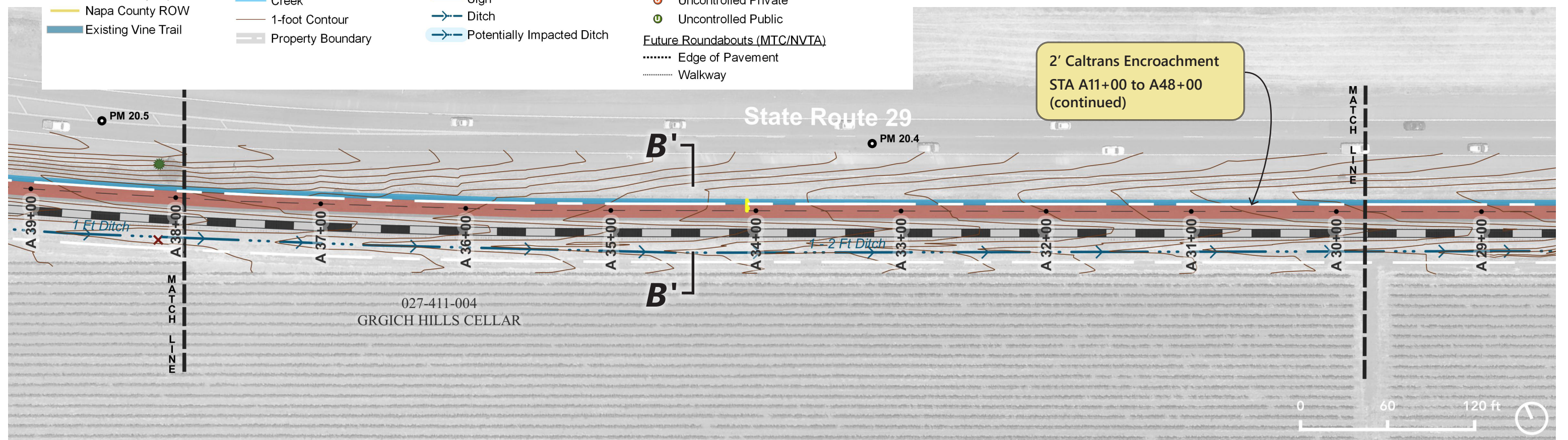
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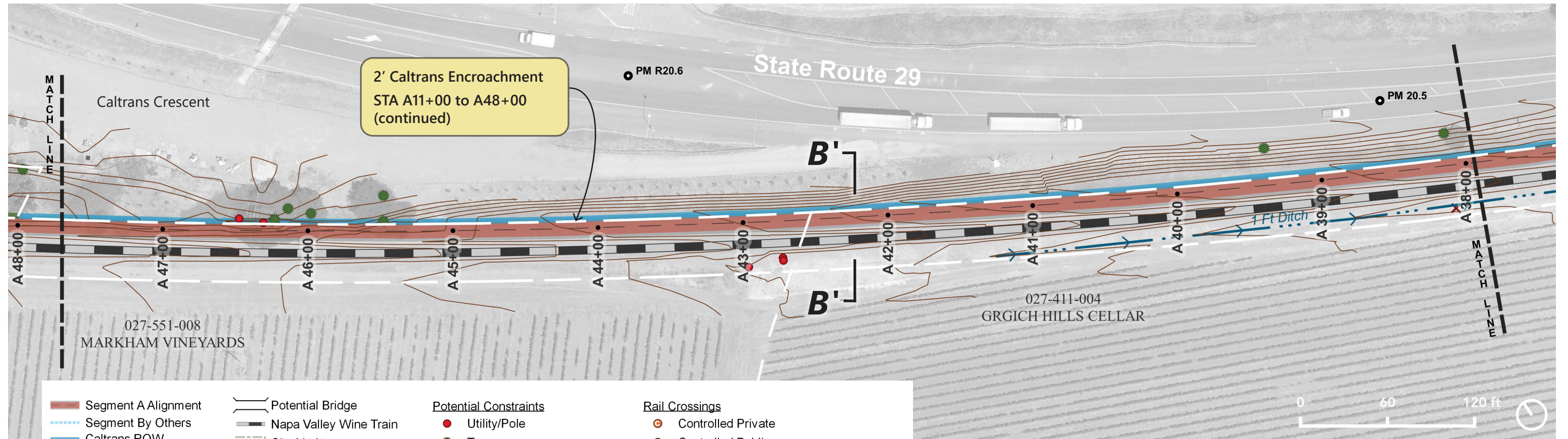
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A-03

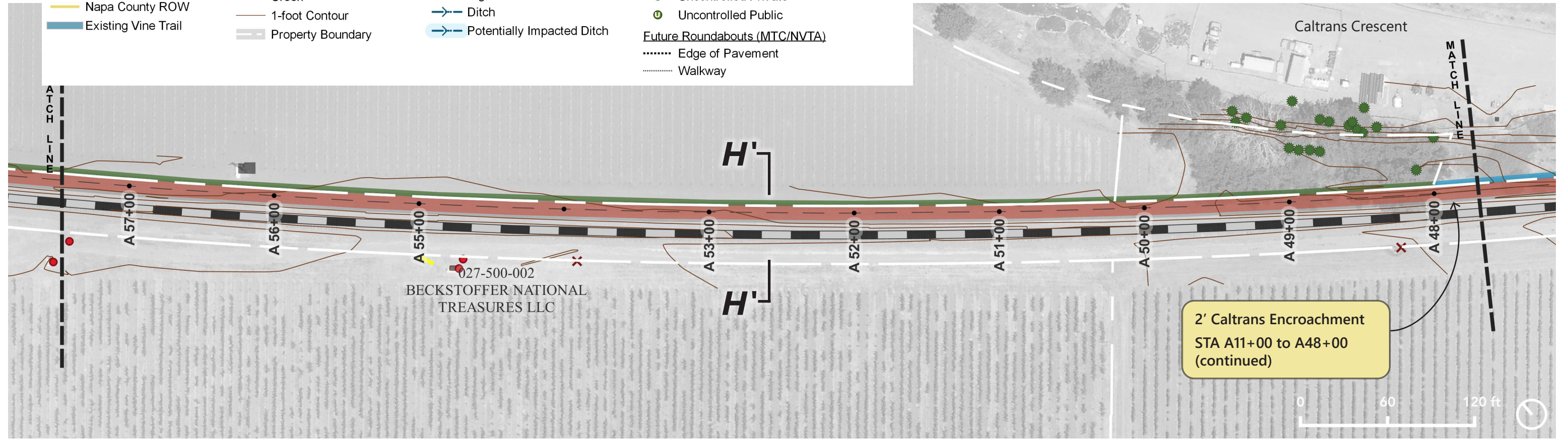


A-04

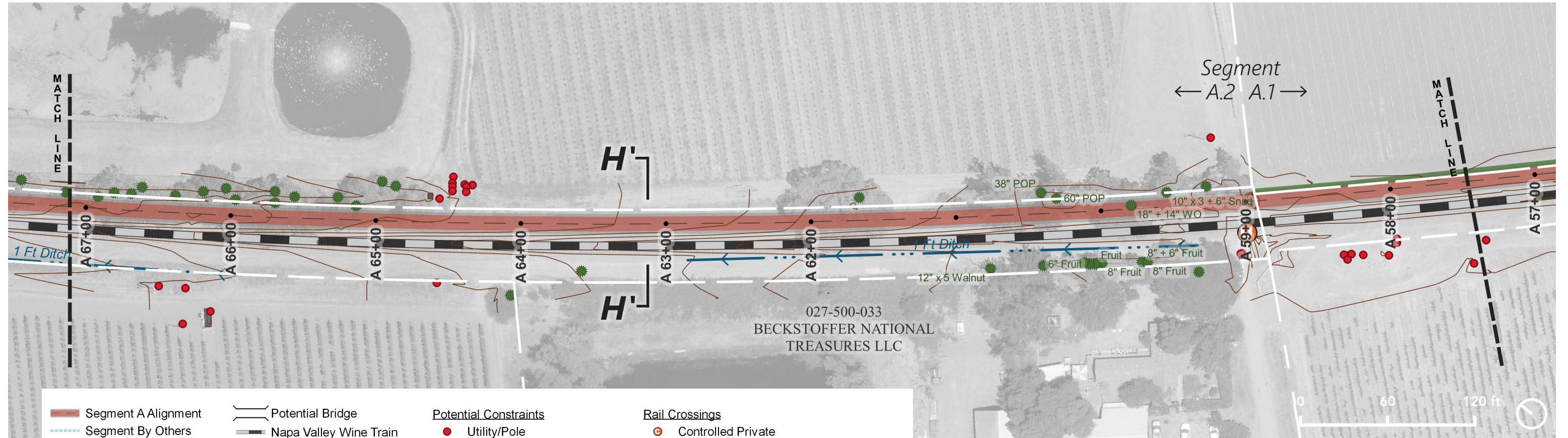


A-05

Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway

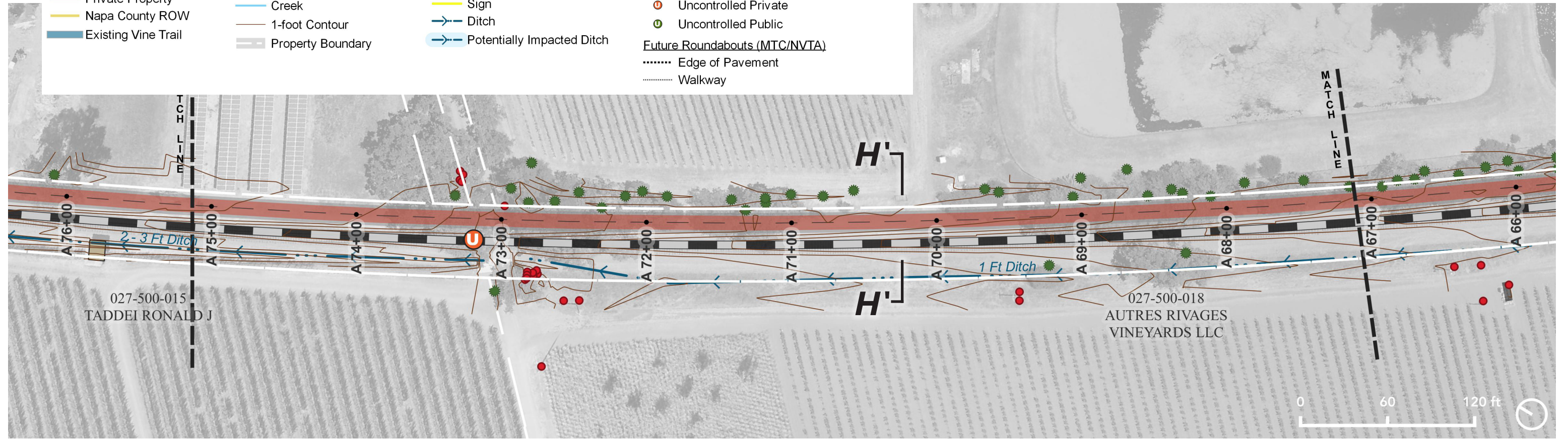


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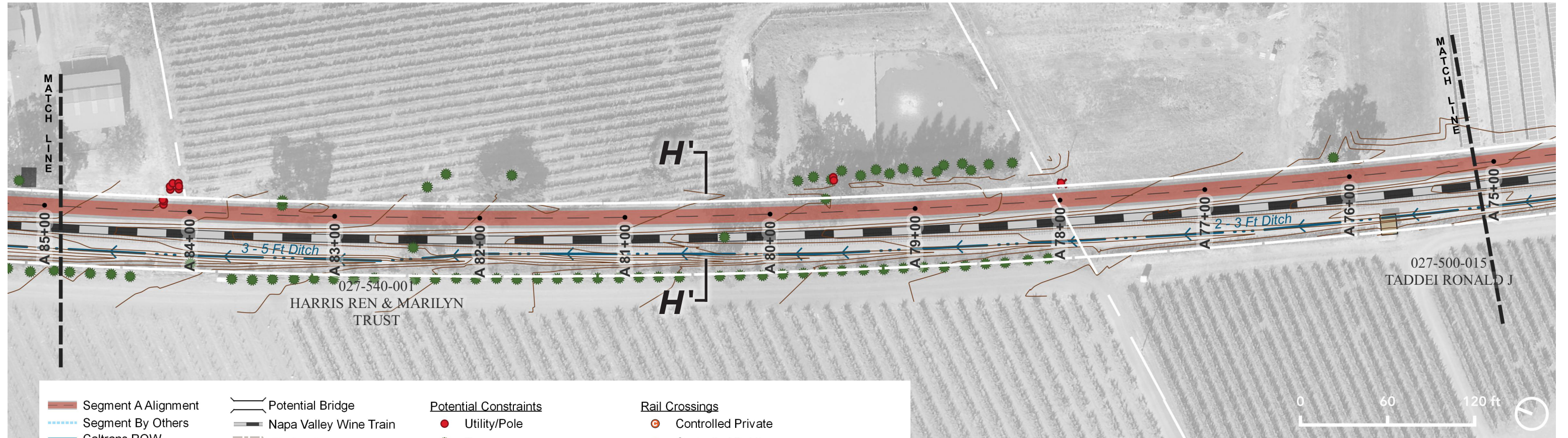


A-07

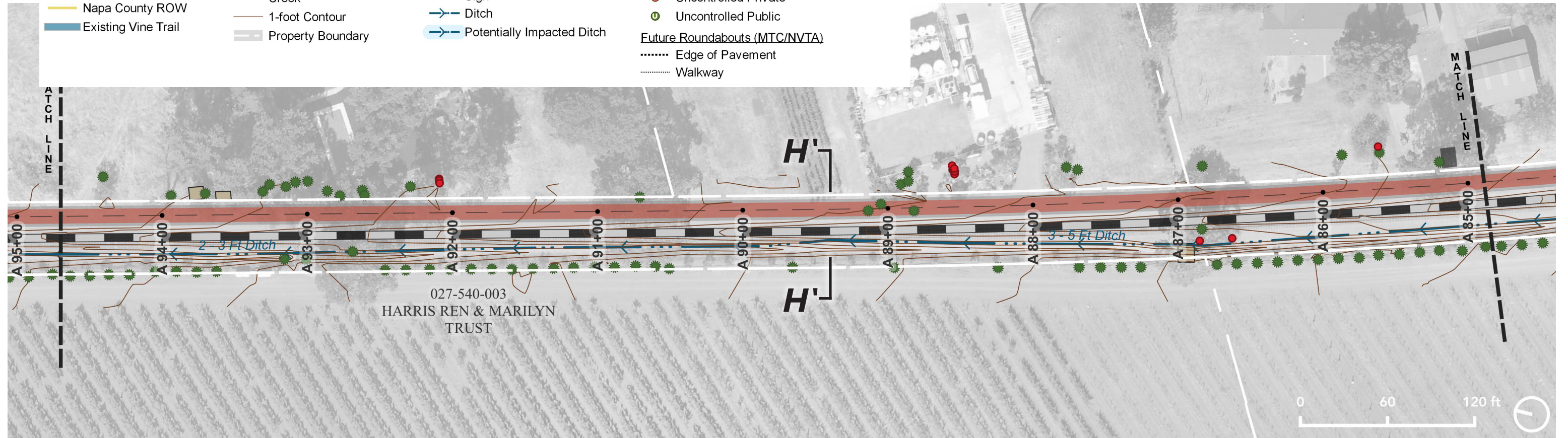
Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway



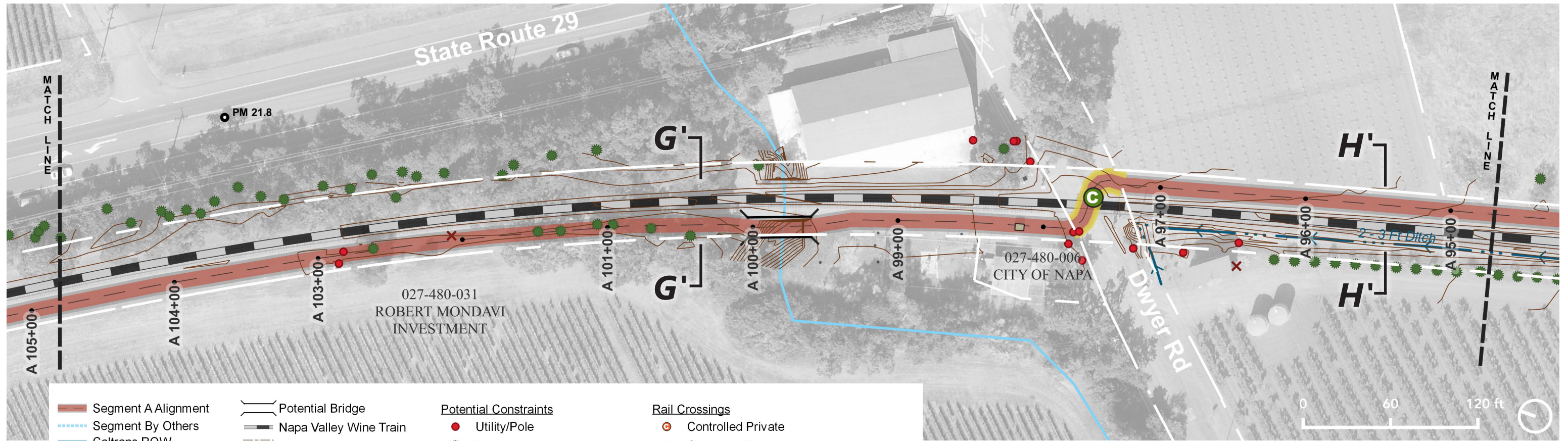
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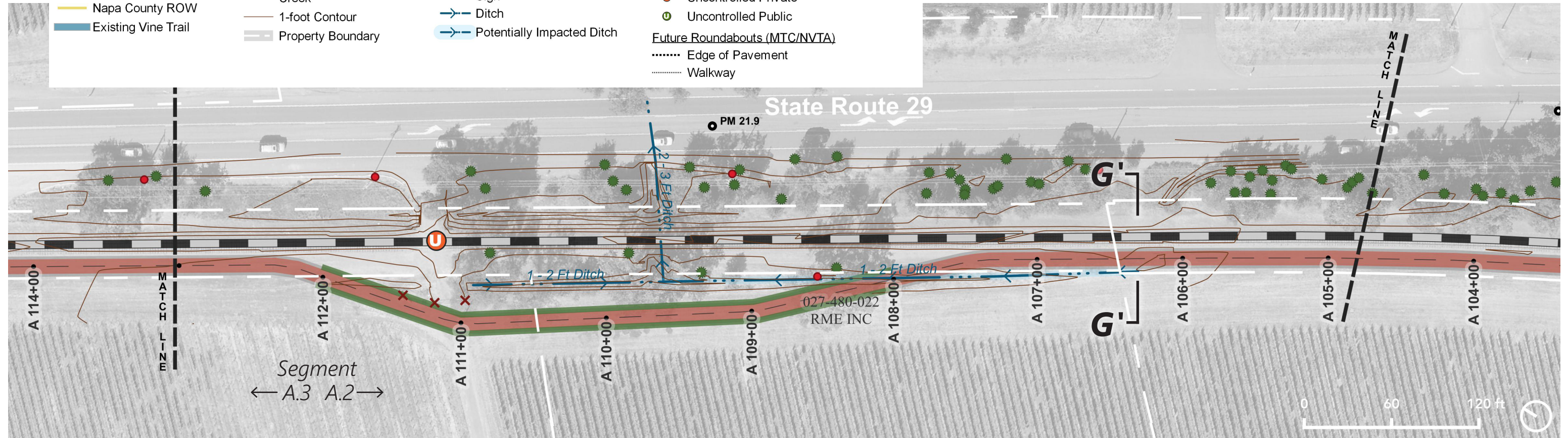


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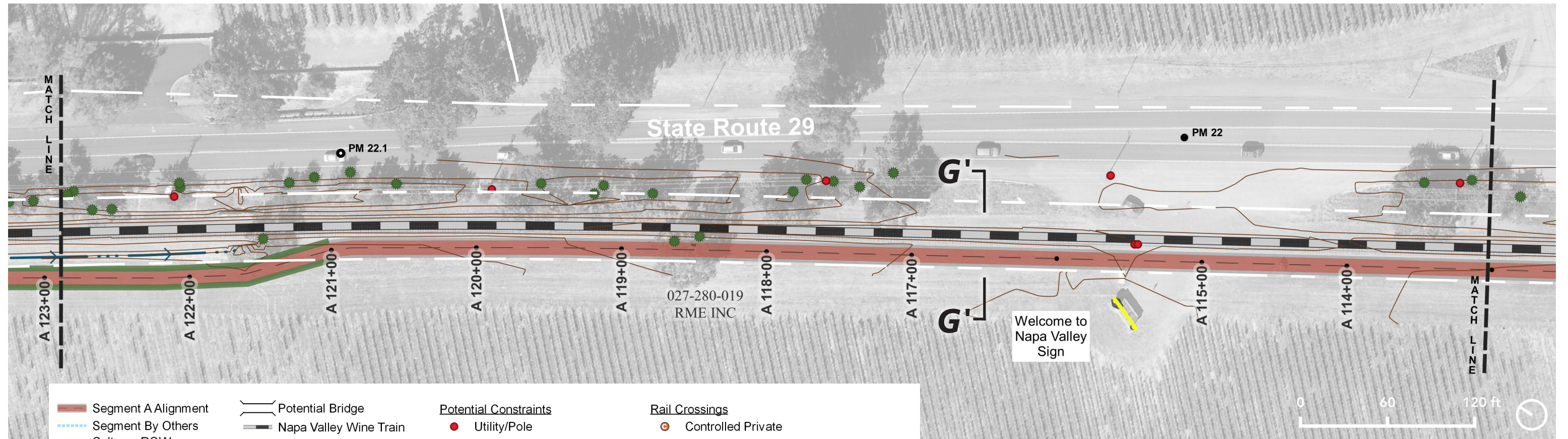


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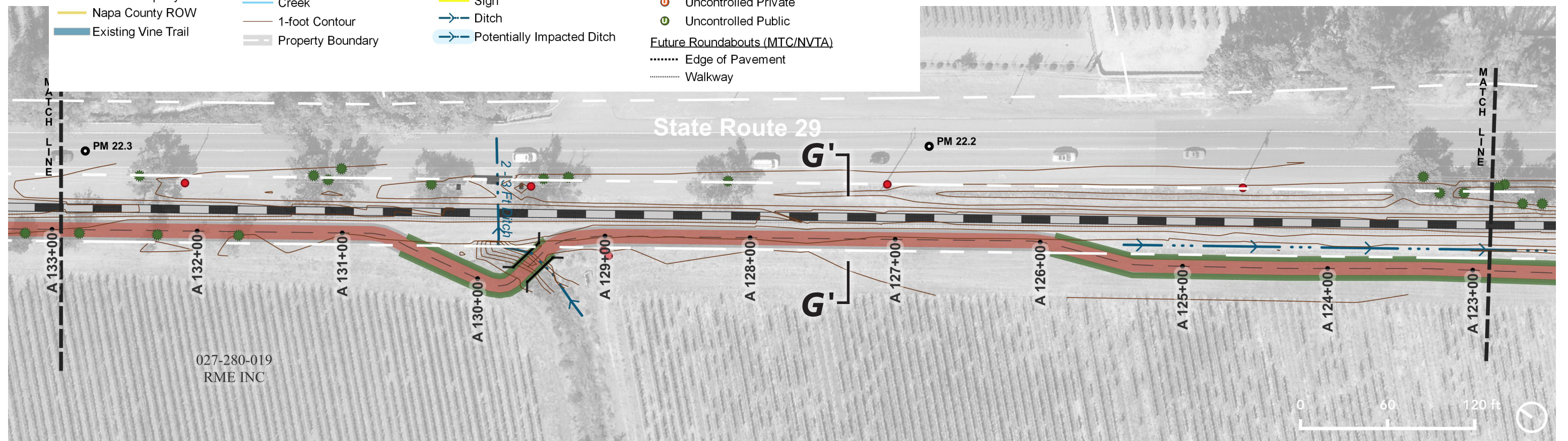
Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway



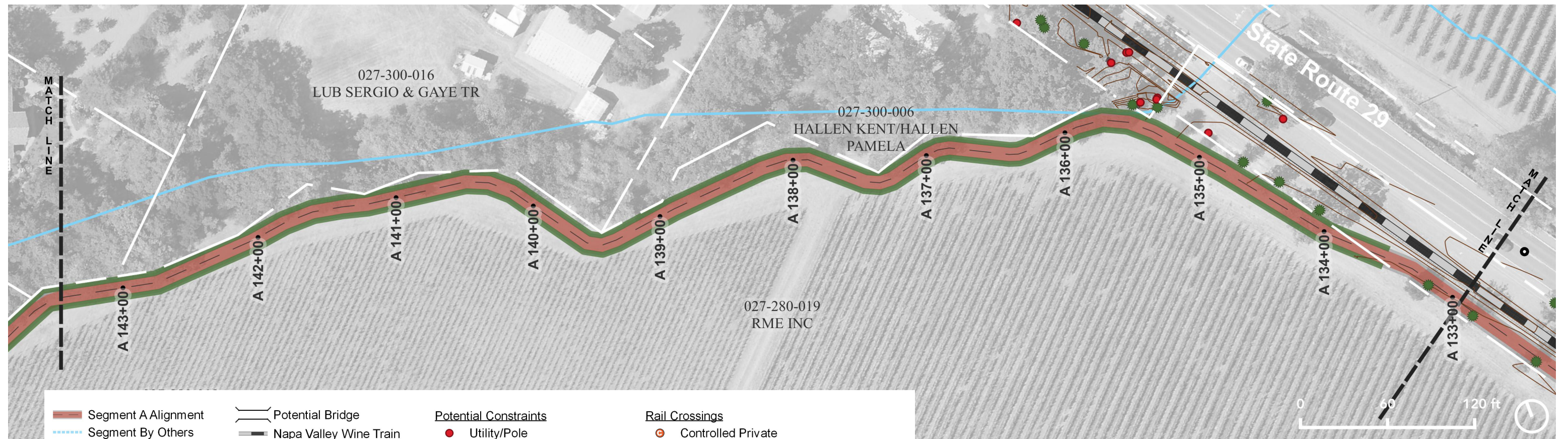
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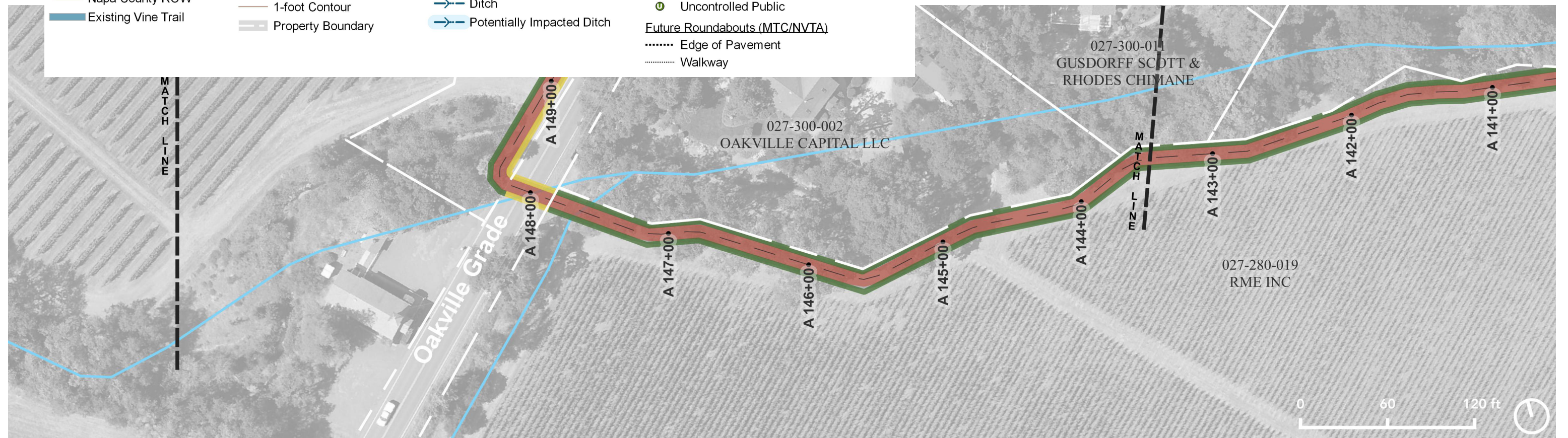
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A-14

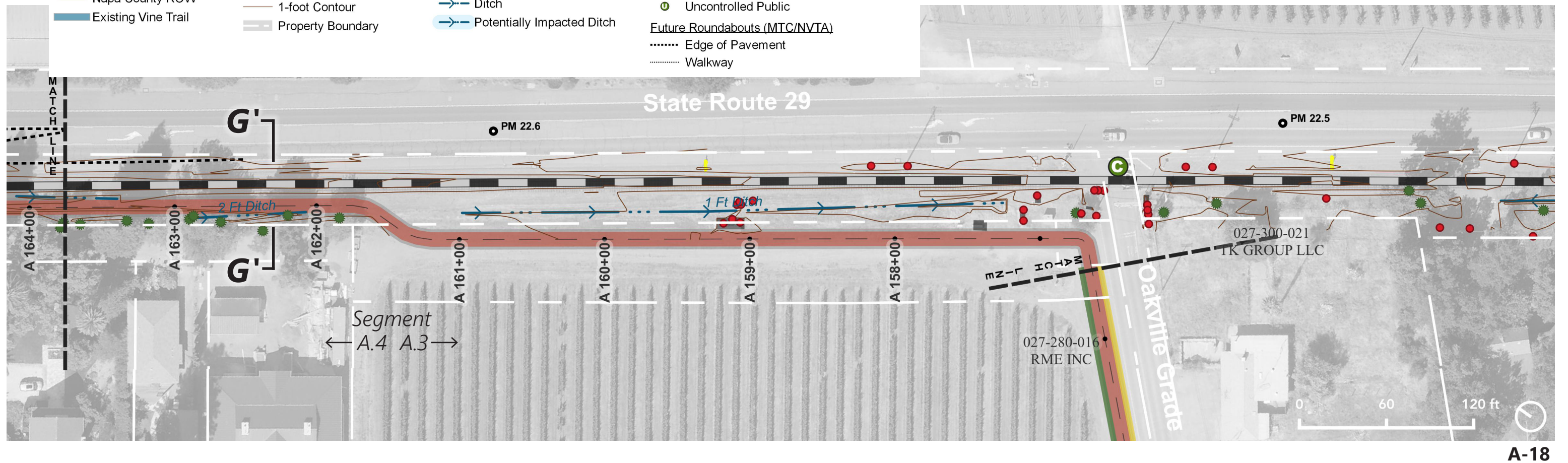
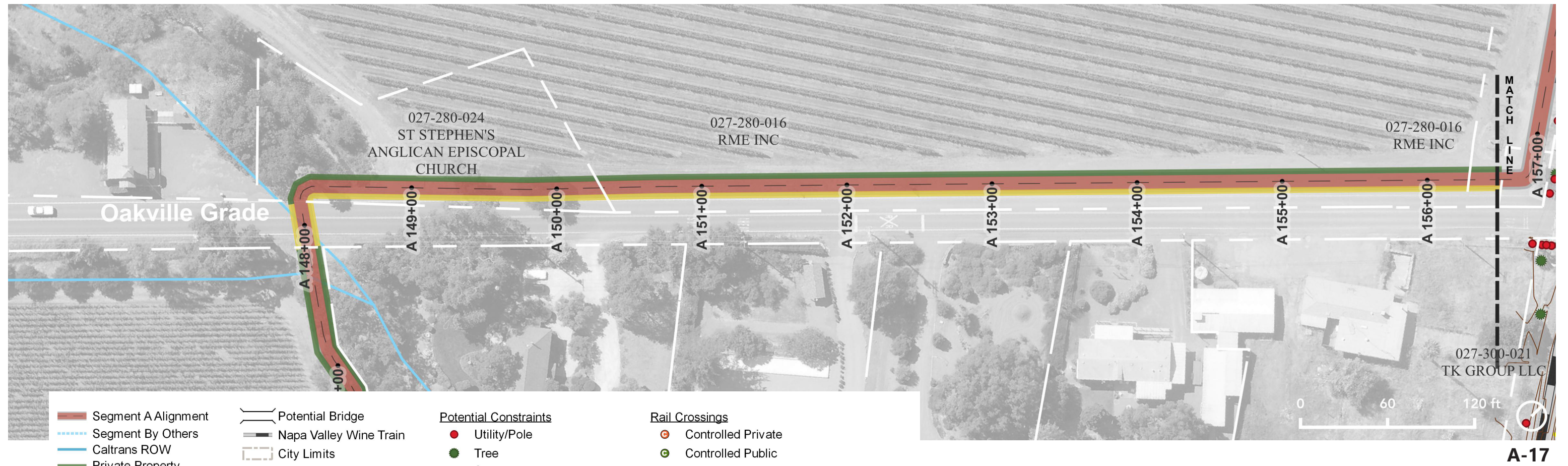


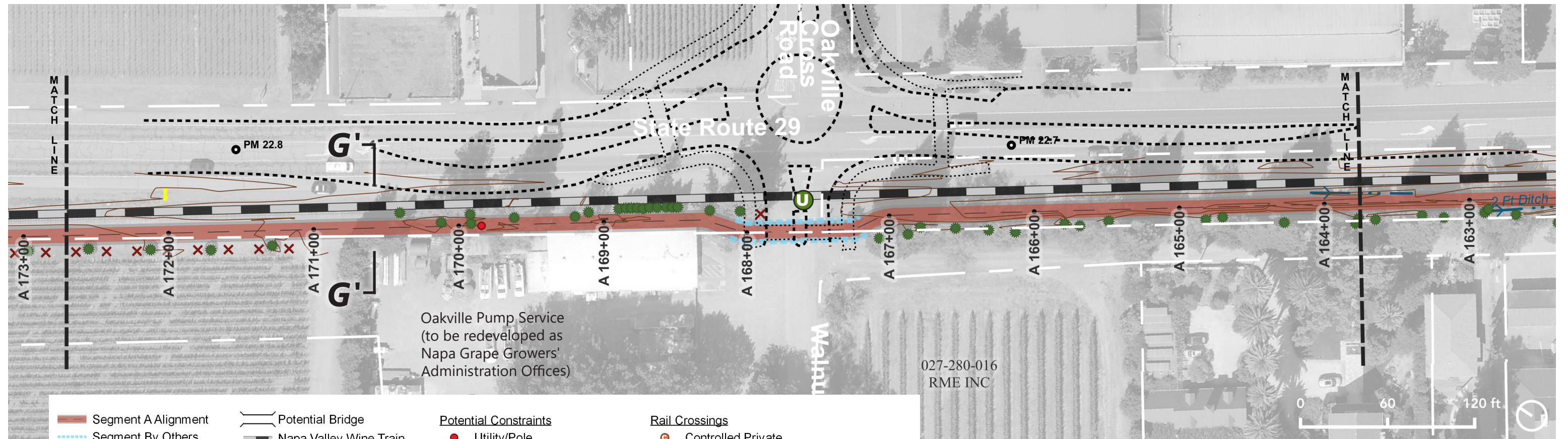
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A-16

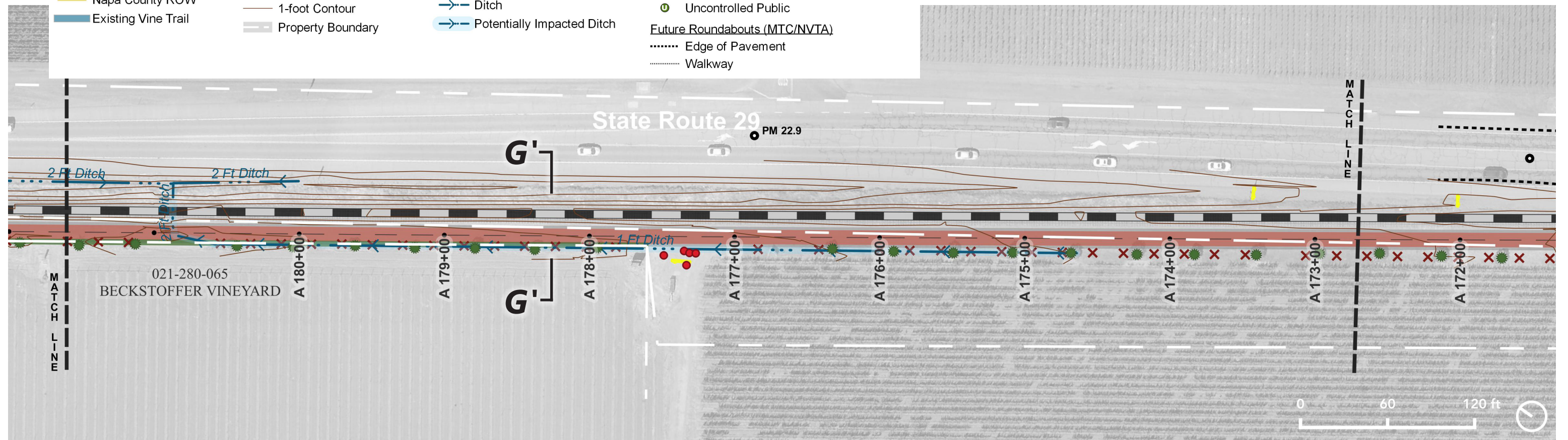
Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway



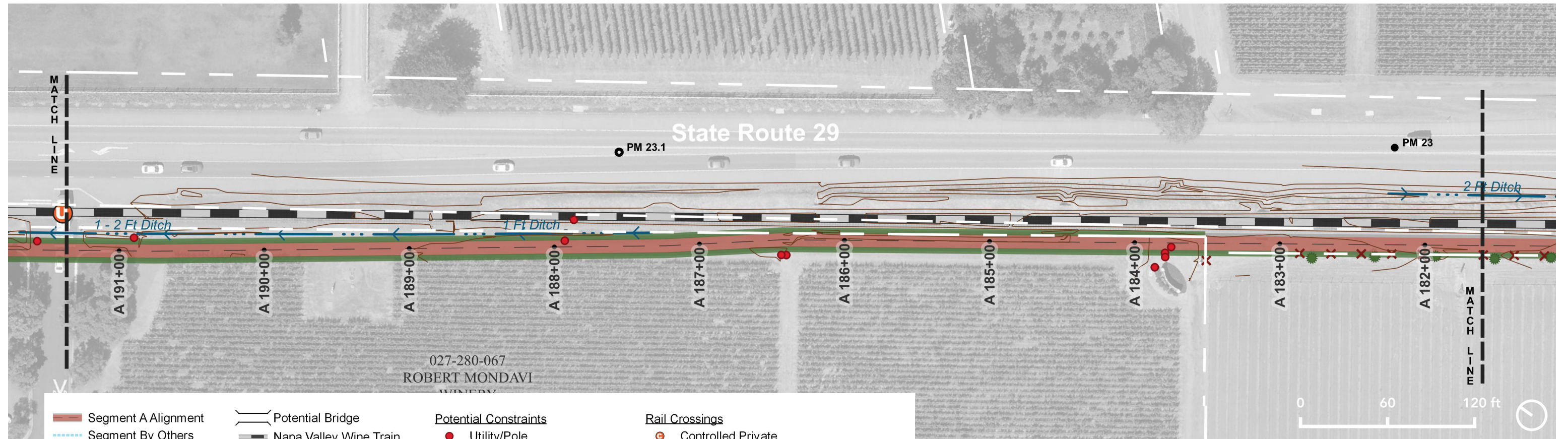


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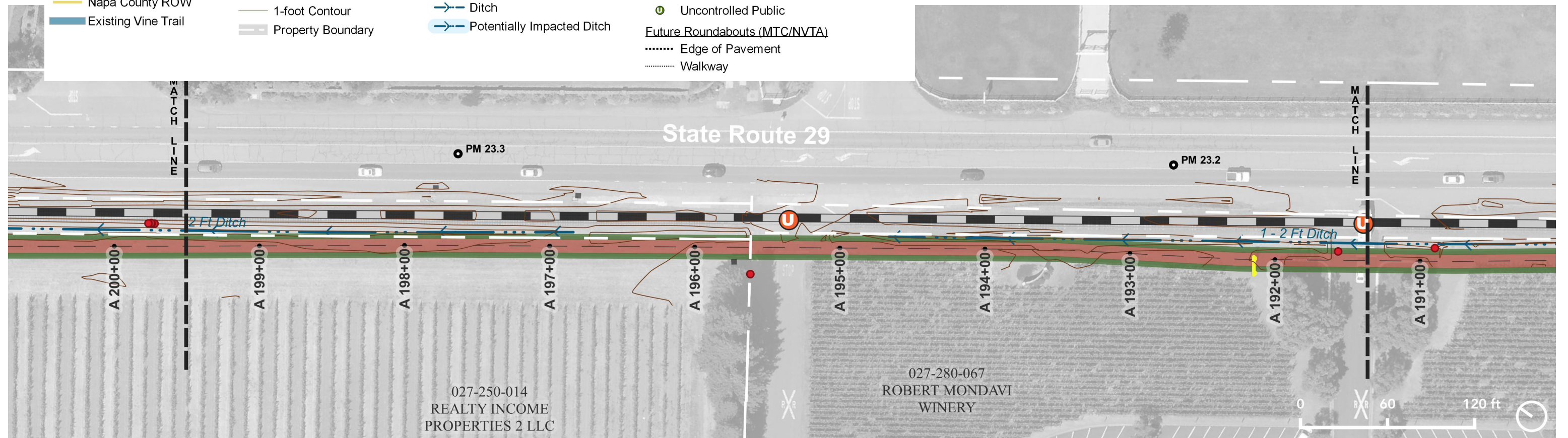
Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Uncontrolled Private
Private Property	Creek	Sign	Uncontrolled Public
Napa County ROW	1-foot Contour	Ditch	Future Roundabouts (MTC/NVTA)
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Edge of Pavement
			Walkway



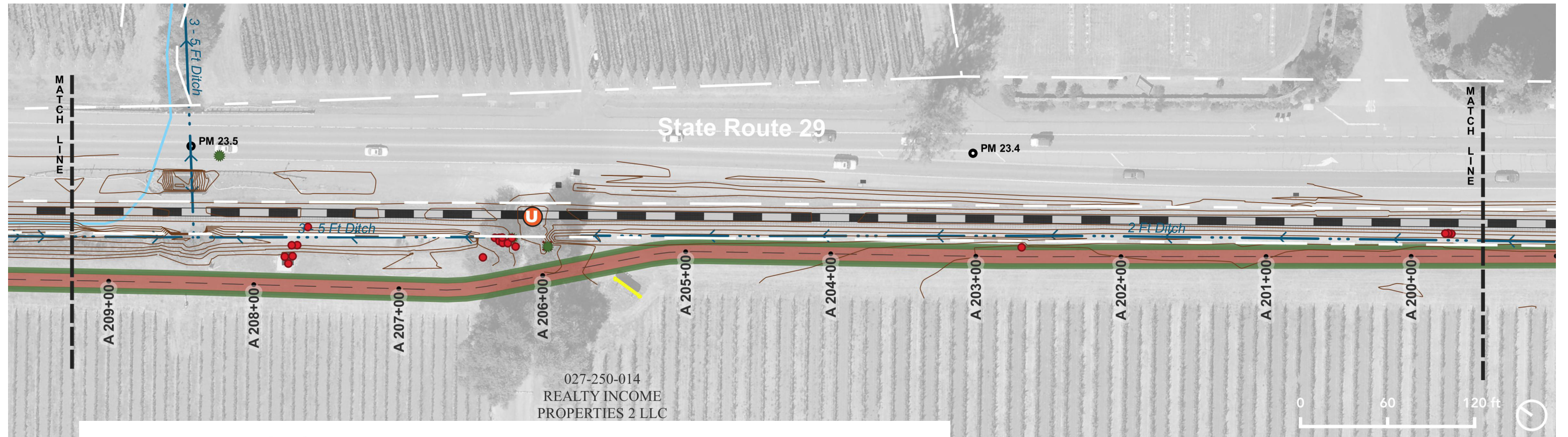
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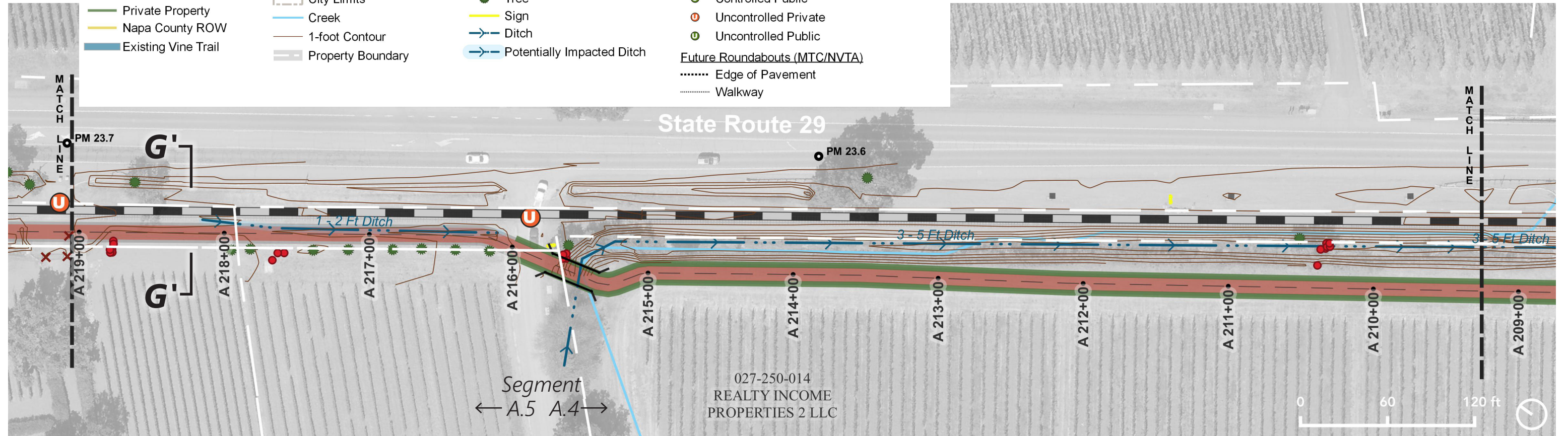


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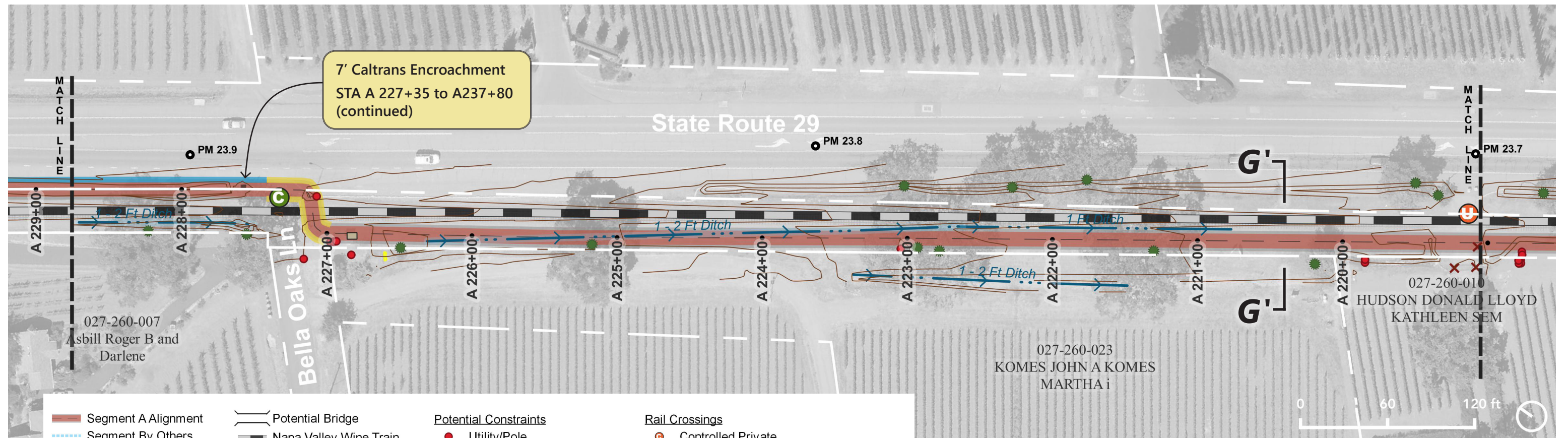


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Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway

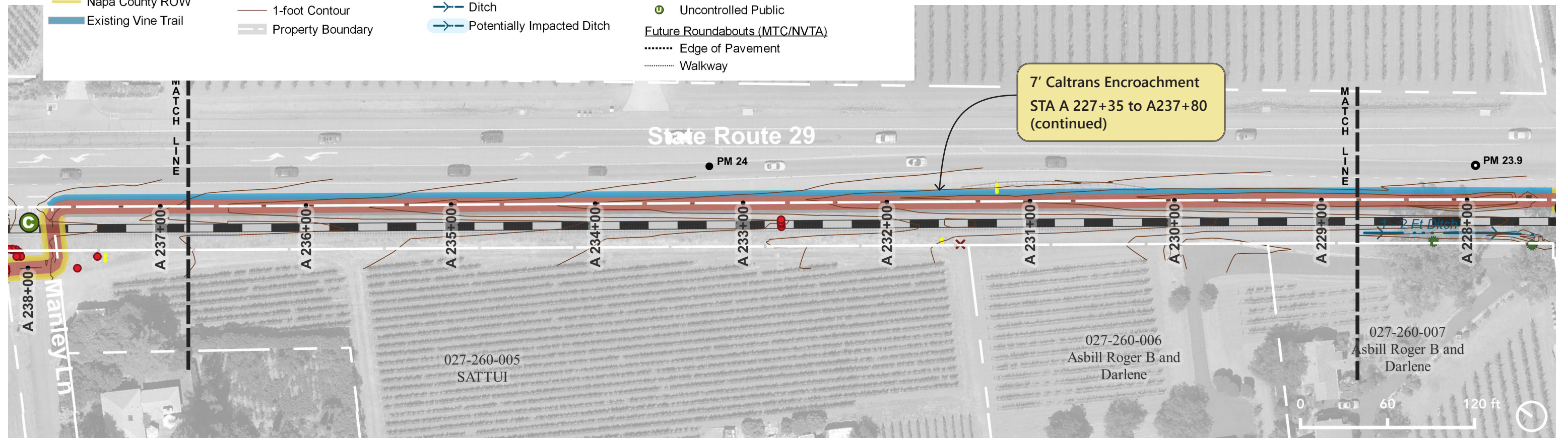


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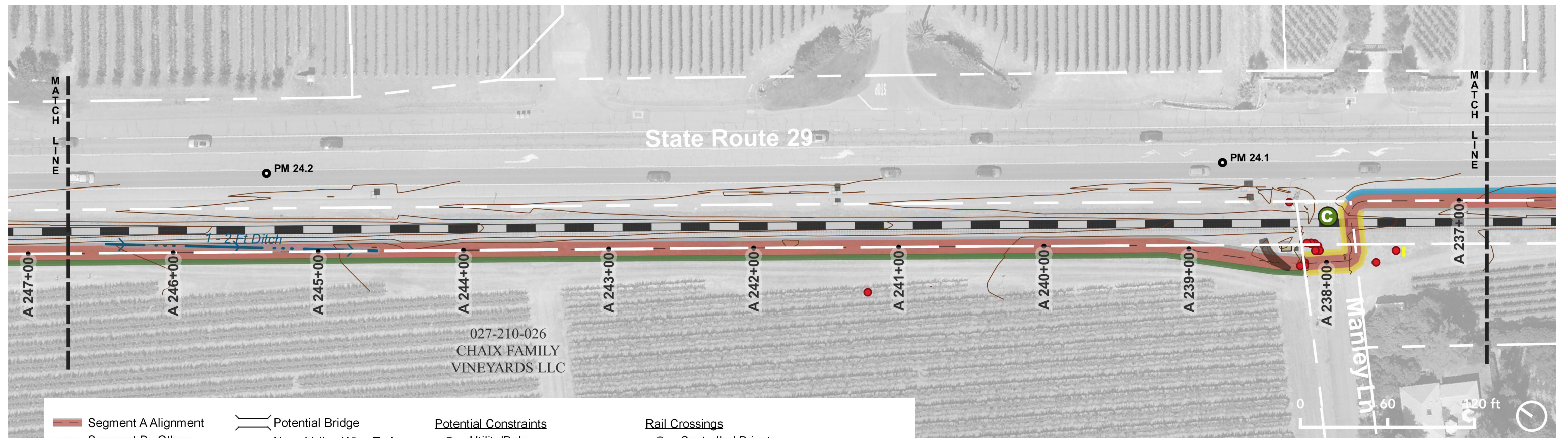


A-25

Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway

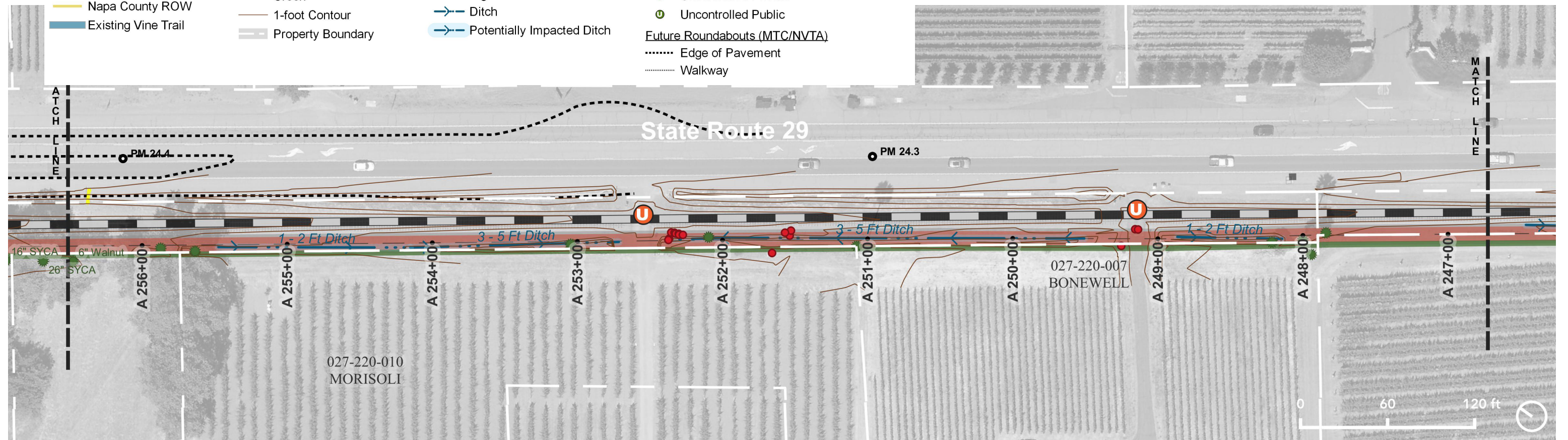


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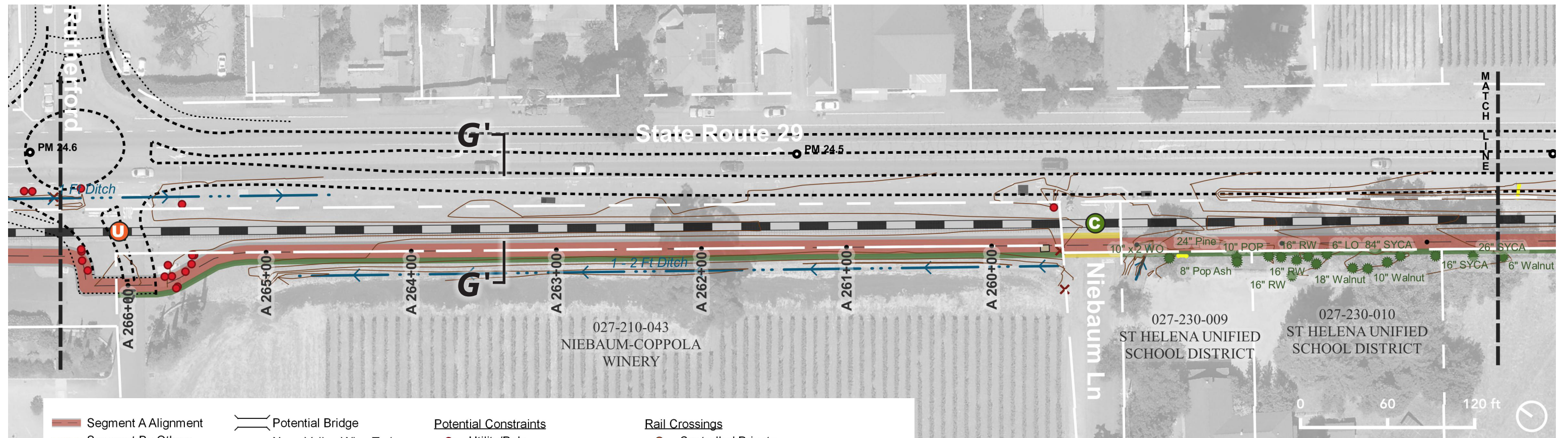


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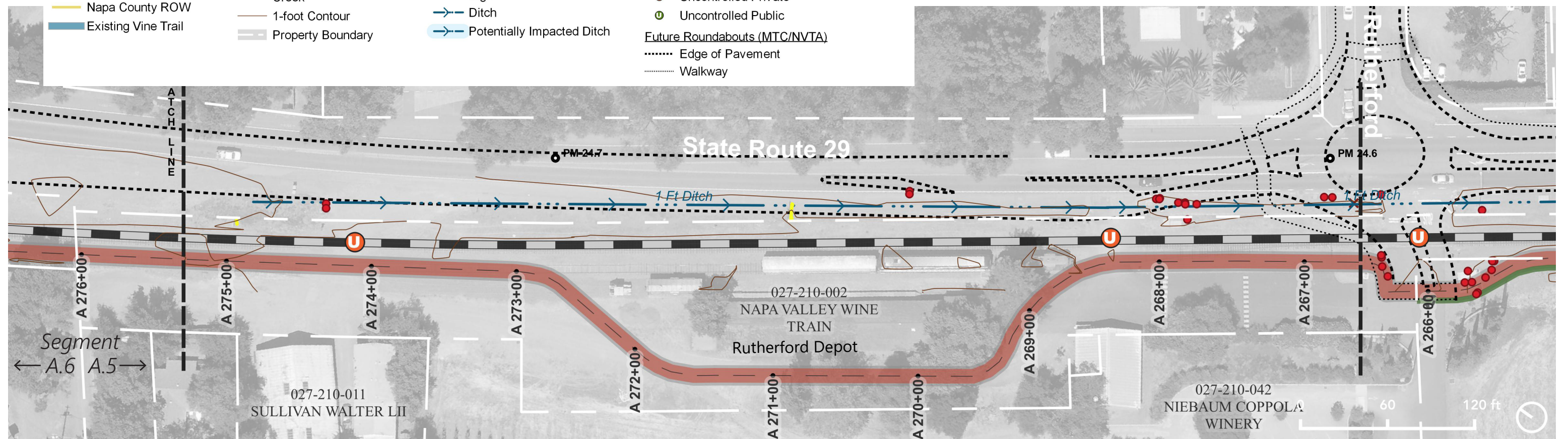
Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway



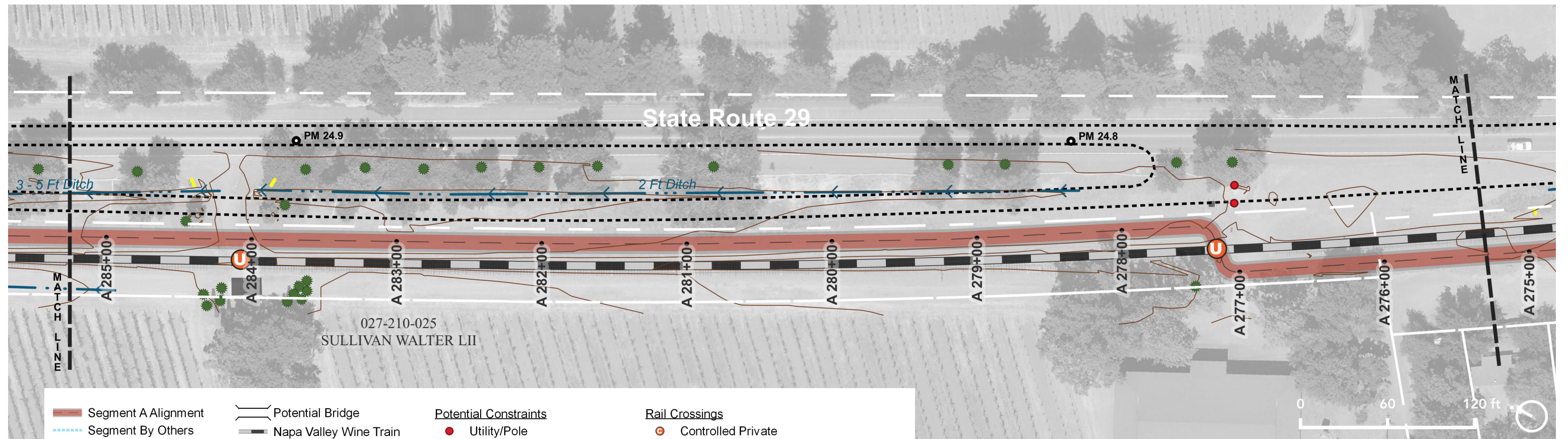
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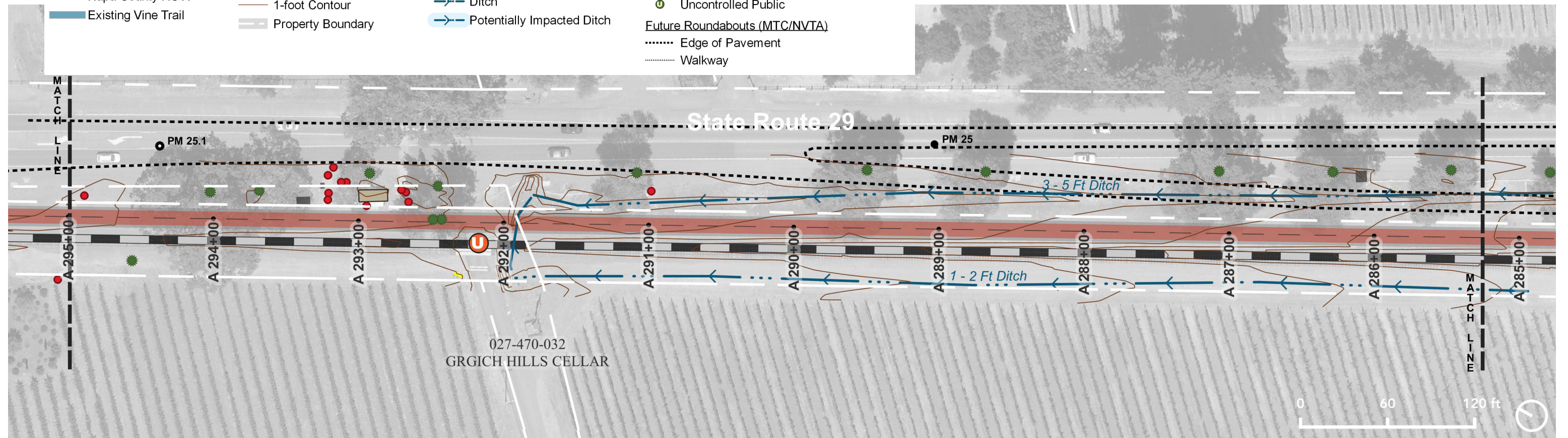
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A-30



A-31

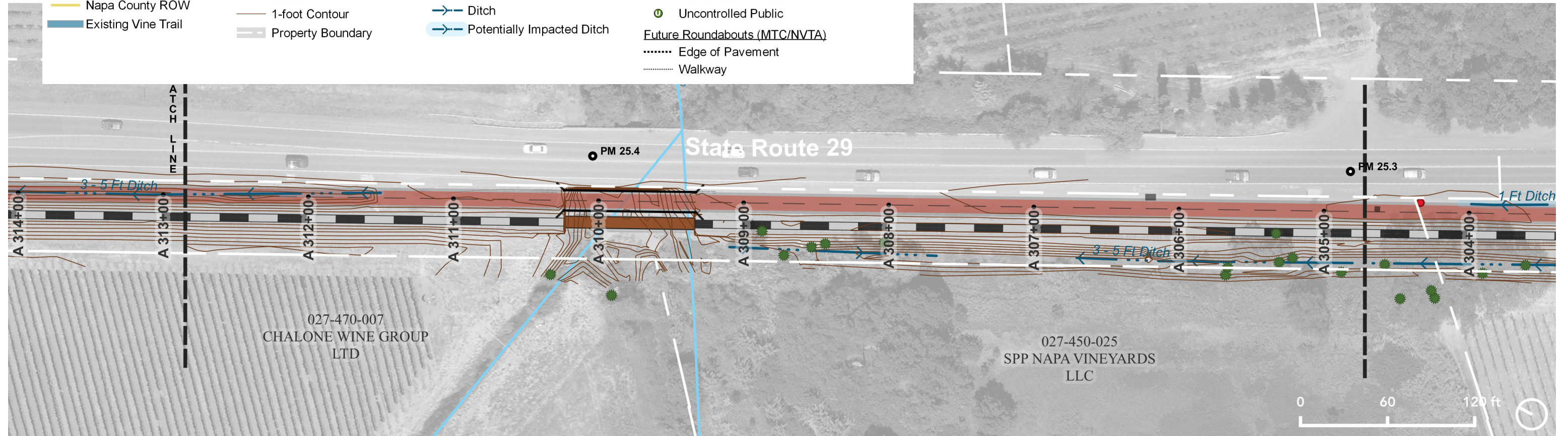


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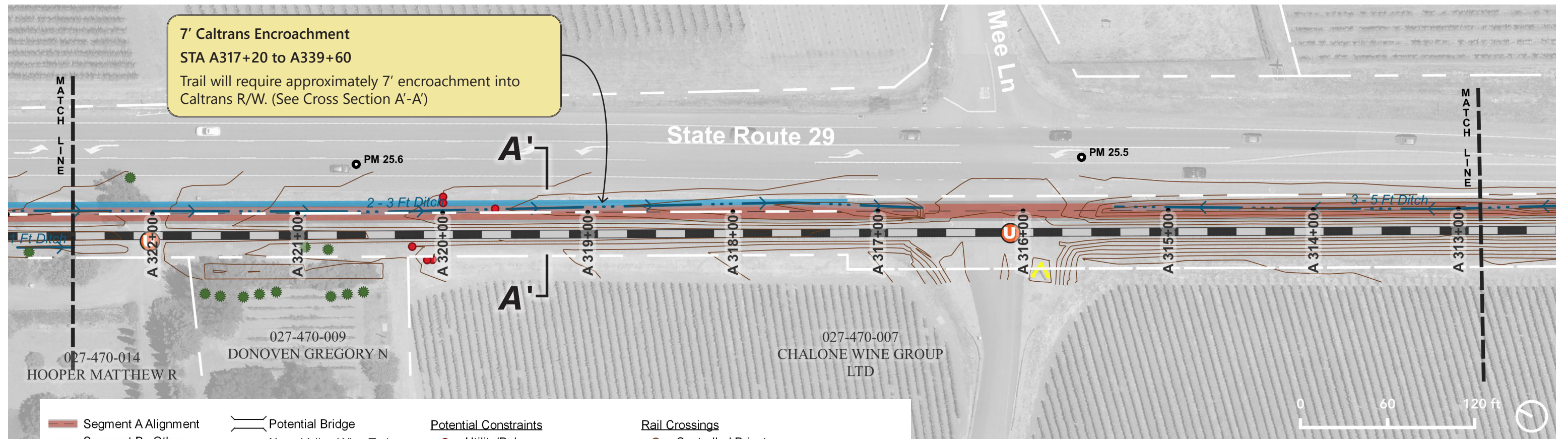


A-33

Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway

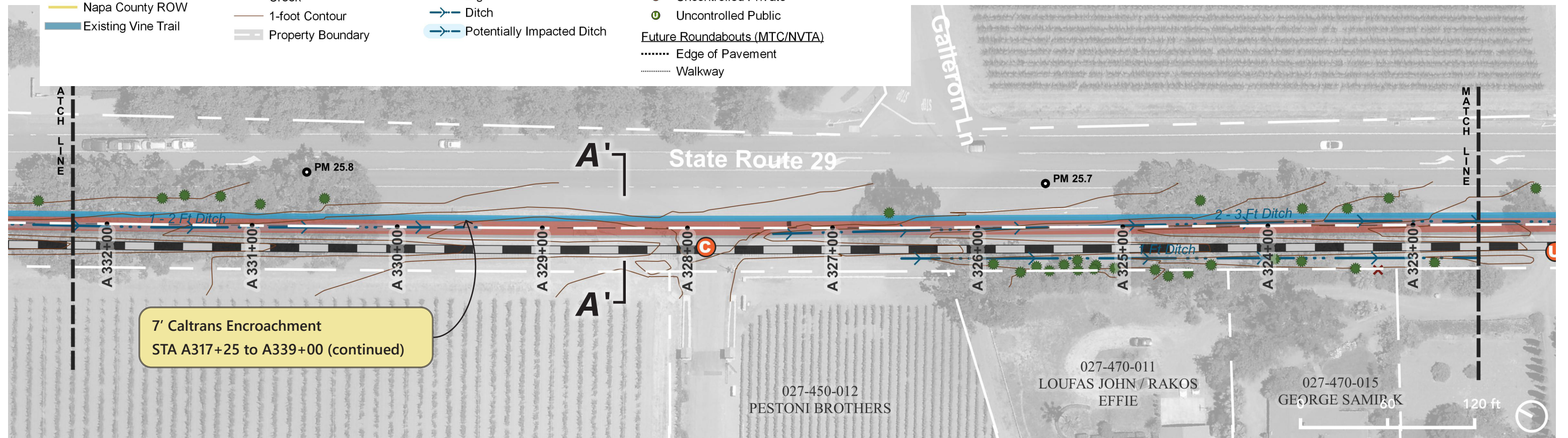


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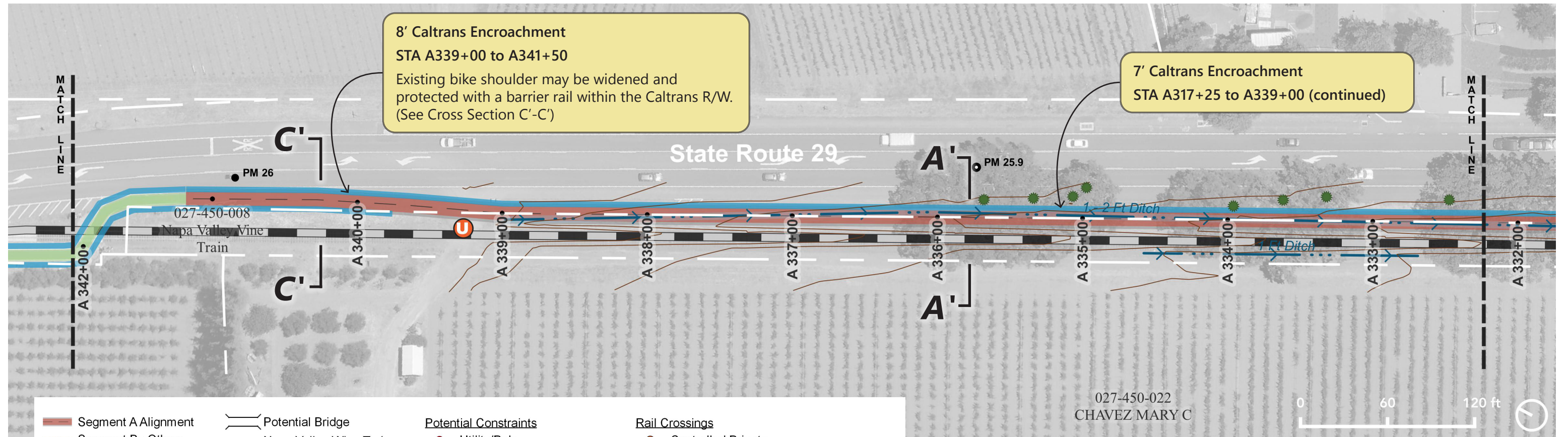


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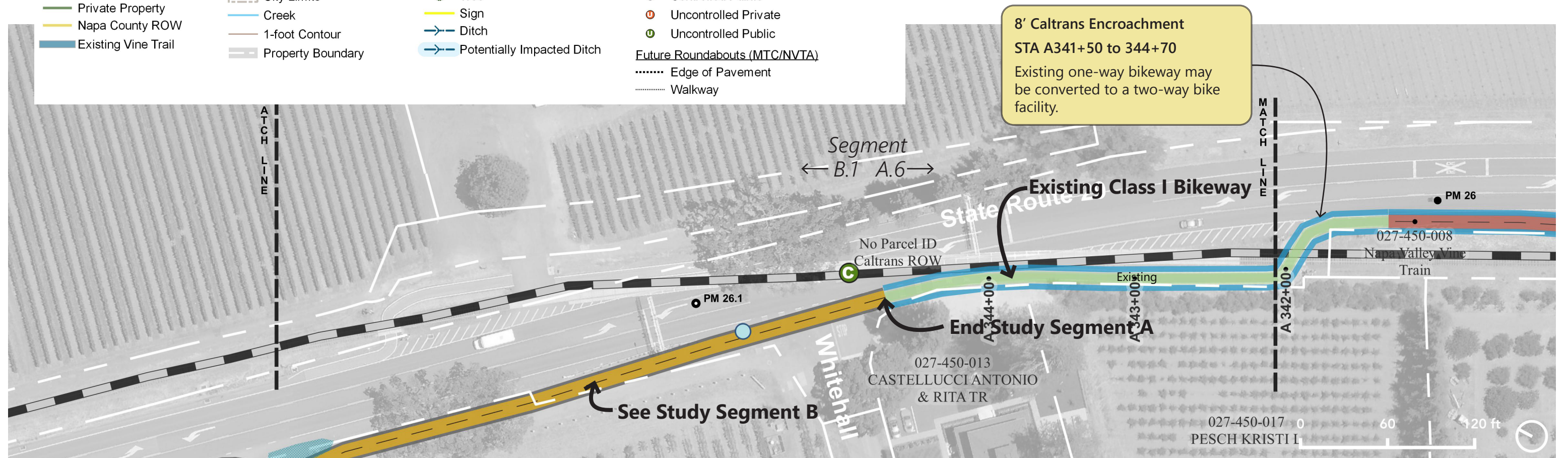
Segment A Alignment	Potential Bridge	Potential Constraints	Rail Crossings
Segment By Others	Napa Valley Wine Train	Utility/Pole	Controlled Private
Caltrans ROW	City Limits	Tree	Controlled Public
Private Property	Creek	Sign	Uncontrolled Private
Napa County ROW	1-foot Contour	Ditch	Uncontrolled Public
Existing Vine Trail	Property Boundary	Potentially Impacted Ditch	Future Roundabouts (MTC/NVTA)
			Edge of Pavement
			Walkway



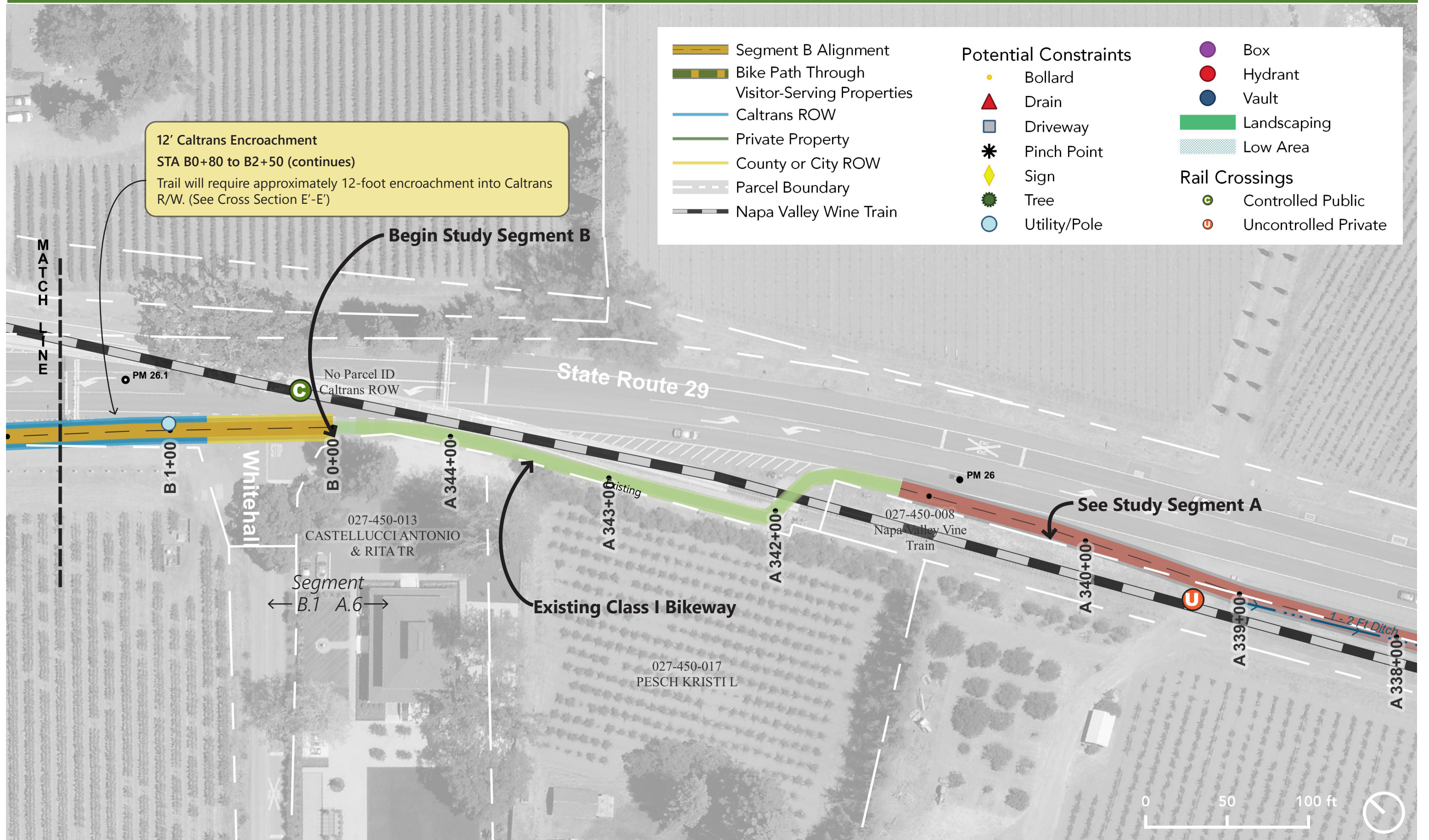
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A-37



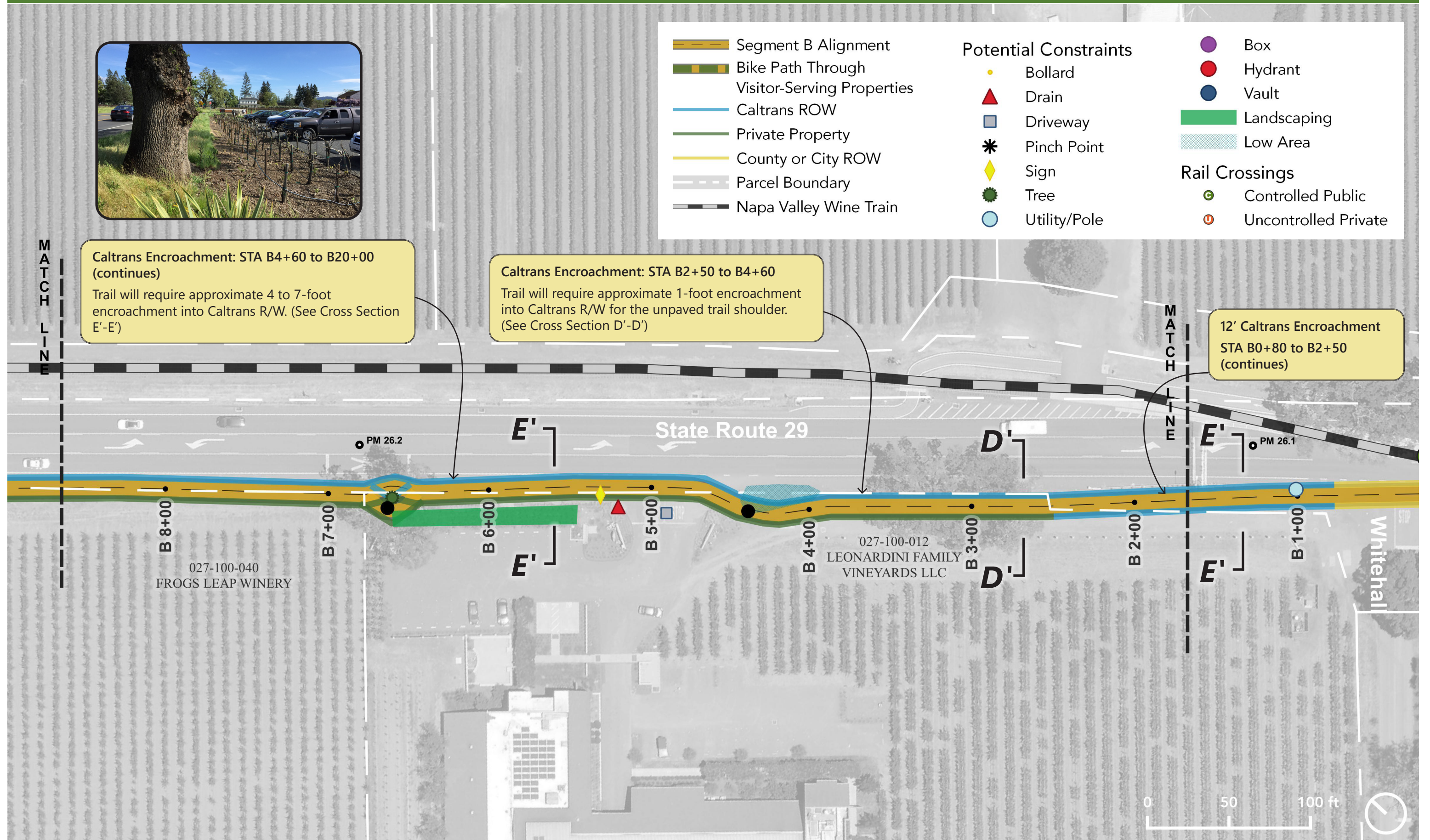
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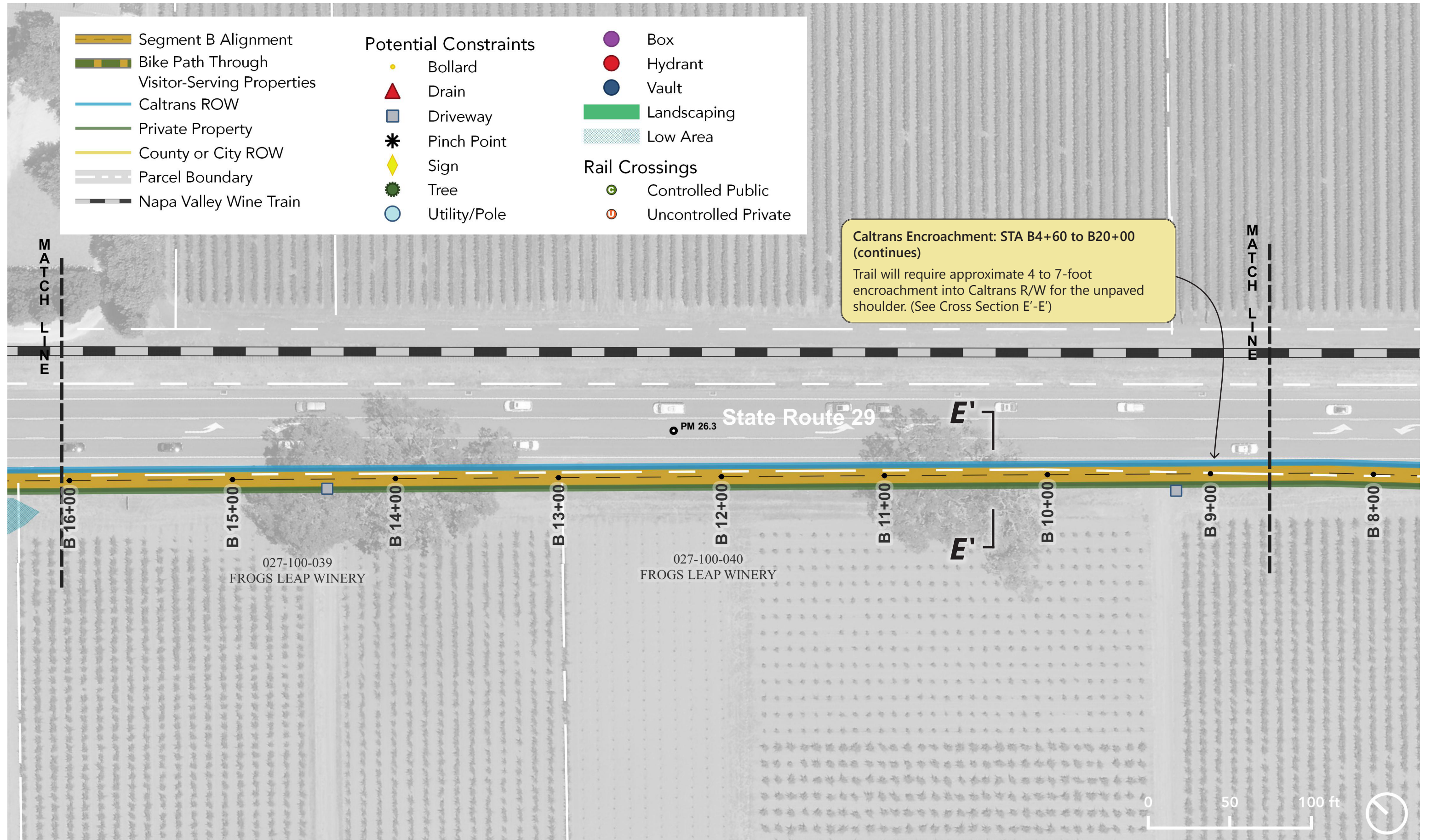


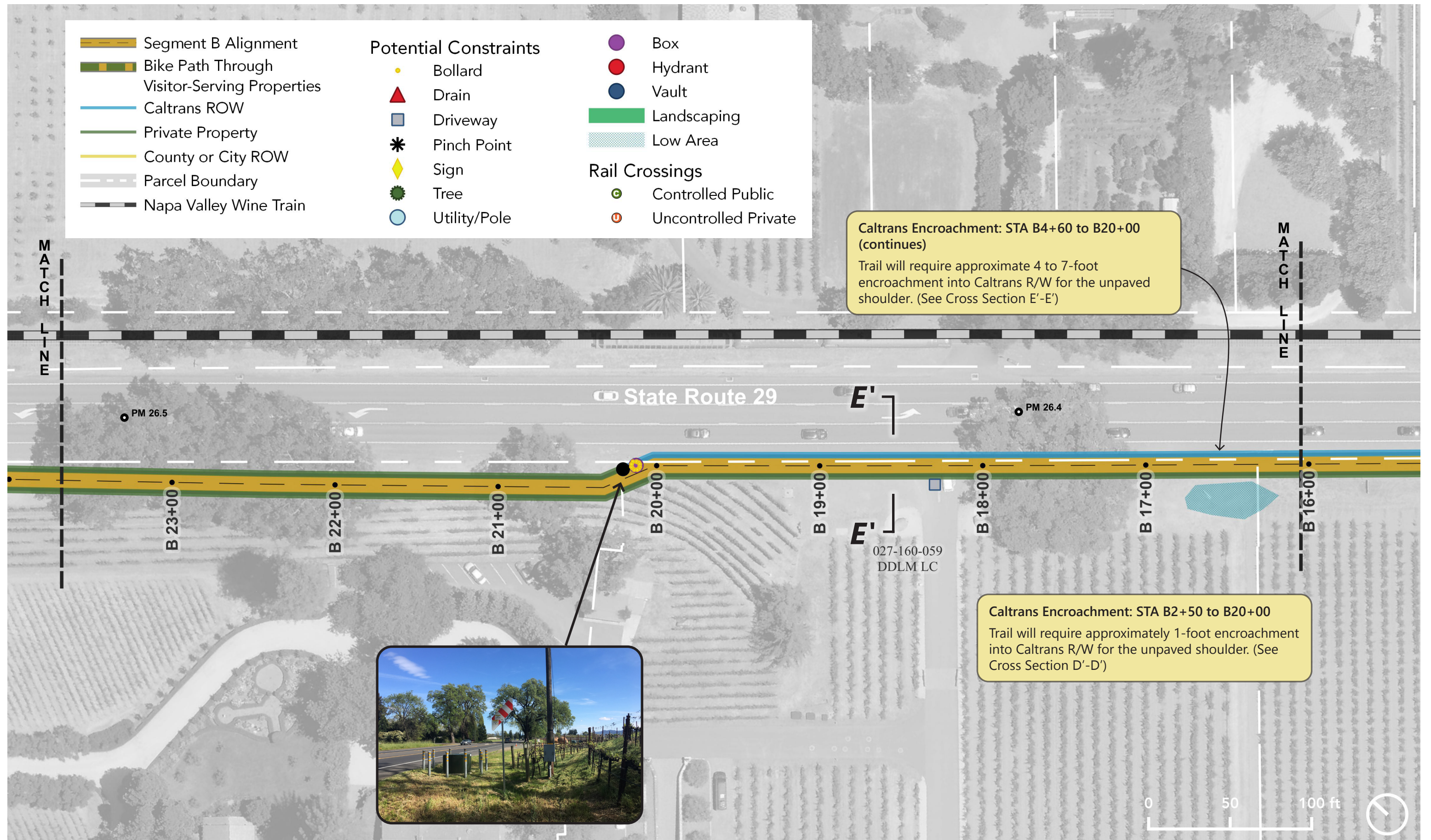
12' Caltrans Encroachment
 STA B0+80 to B2+50 (continues)
 Trail will require approximately 12-foot encroachment into Caltrans R/W. (See Cross Section E'-E')

- | | | | | | |
|--|----------------------------------------------|------------------------------|--------------|-----------------------|----------------------|
| | Segment B Alignment | Potential Constraints | | Box | |
| | Bike Path Through Visitor-Serving Properties | | Bollard | | Hydrant |
| | Caltrans ROW | | Drain | | Vault |
| | Private Property | | Driveway | | Landscaping |
| | County or City ROW | | Pinch Point | | Low Area |
| | Parcel Boundary | | Sign | Rail Crossings | |
| | Napa Valley Wine Train | | Tree | | Controlled Public |
| | | | Utility/Pole | | Uncontrolled Private |







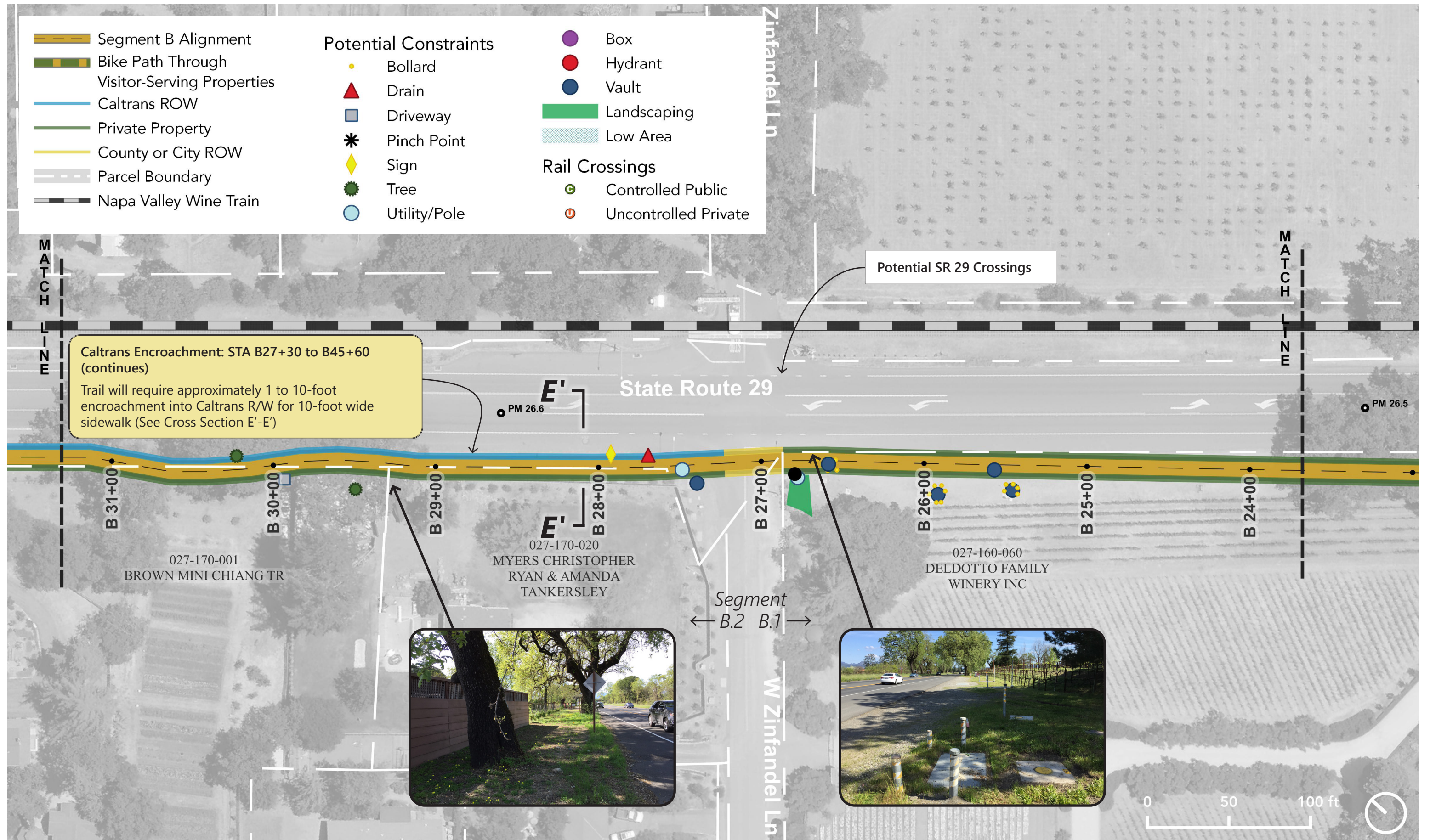


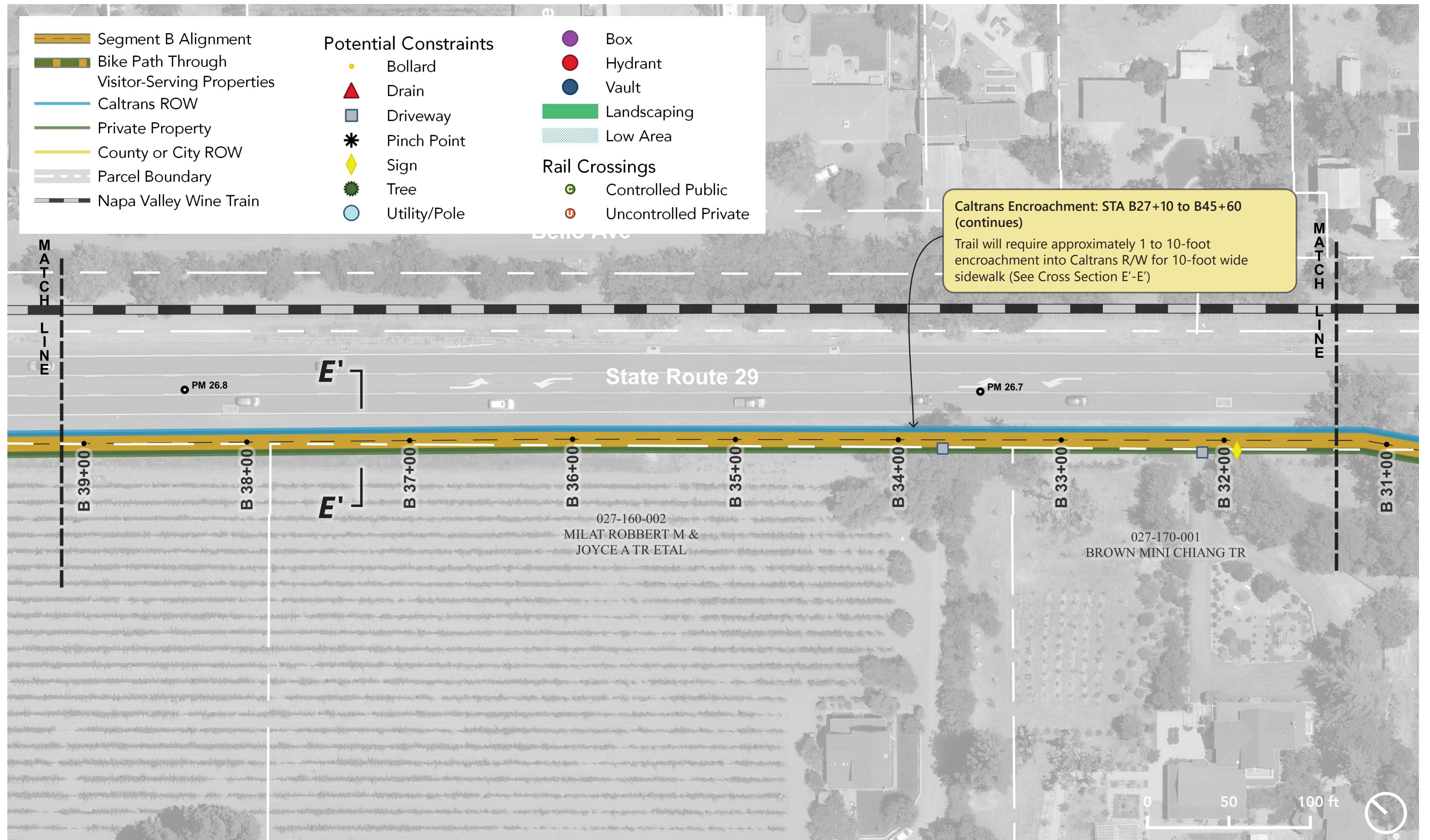
Segment B Alignment	Bollard	Box
Bike Path Through Visitor-Serving Properties	Drain	Hydrant
Caltrans ROW	Driveway	Vault
Private Property	Pinch Point	Landscaping
County or City ROW	Sign	Low Area
Parcel Boundary	Tree	Rail Crossings
Napa Valley Wine Train	Utility/Pole	Controlled Public
		Uncontrolled Private

Caltrans Encroachment: STA B4+60 to B20+00 (continues)
 Trail will require approximate 4 to 7-foot encroachment into Caltrans R/W for the unpaved shoulder. (See Cross Section E'-E')

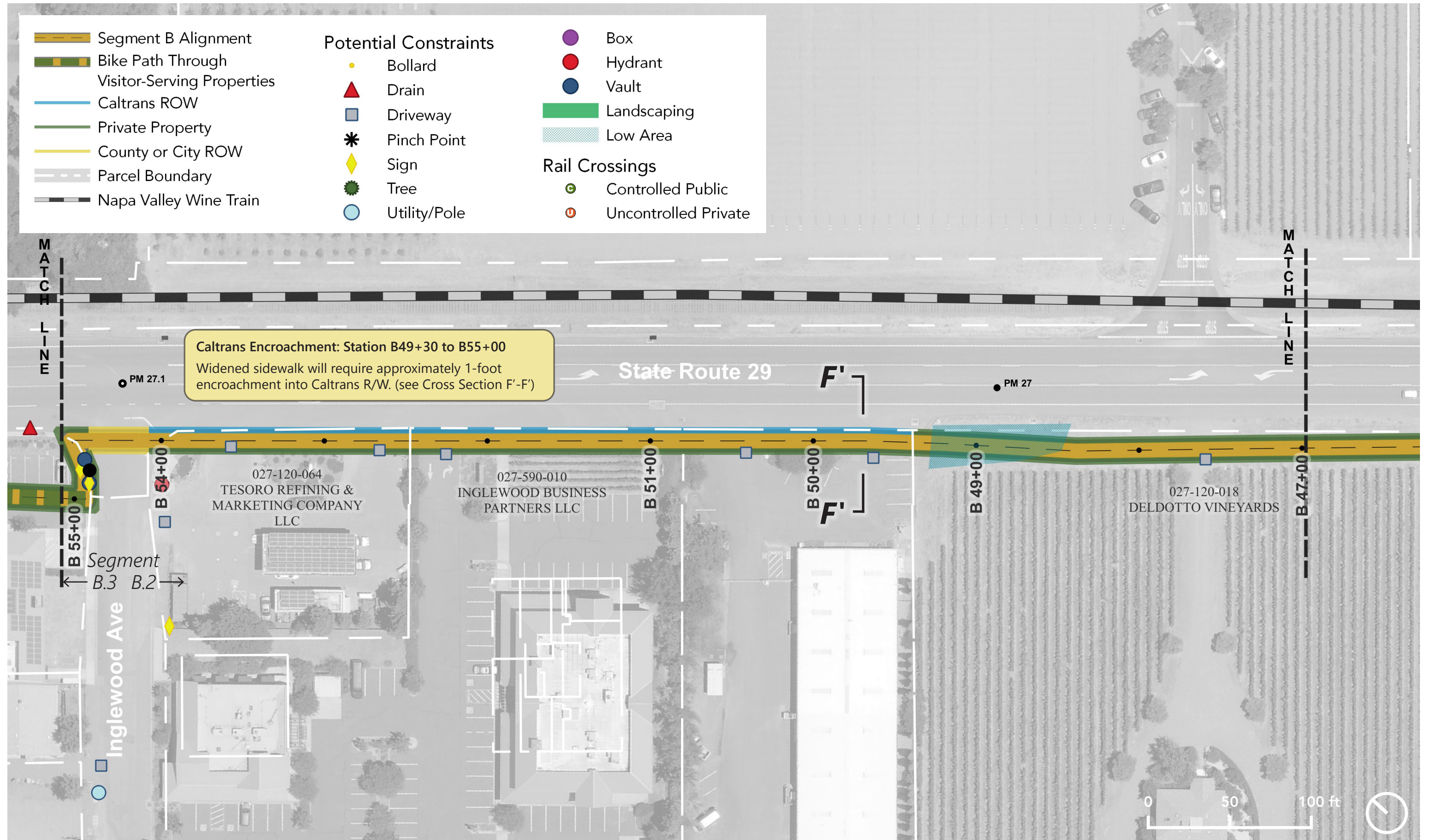
Caltrans Encroachment: STA B2+50 to B20+00
 Trail will require approximately 1-foot encroachment into Caltrans R/W for the unpaved shoulder. (See Cross Section D'-D')

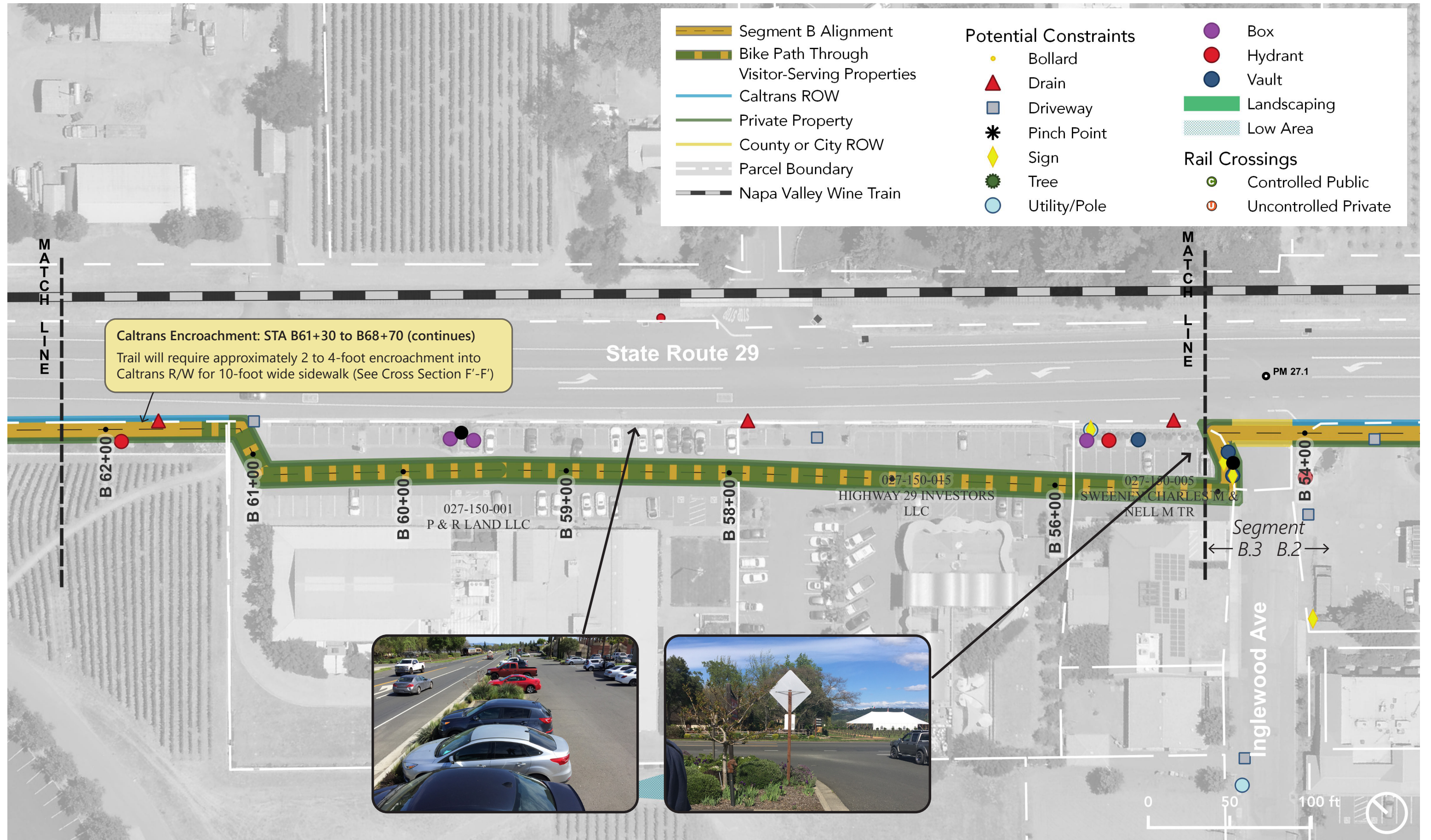


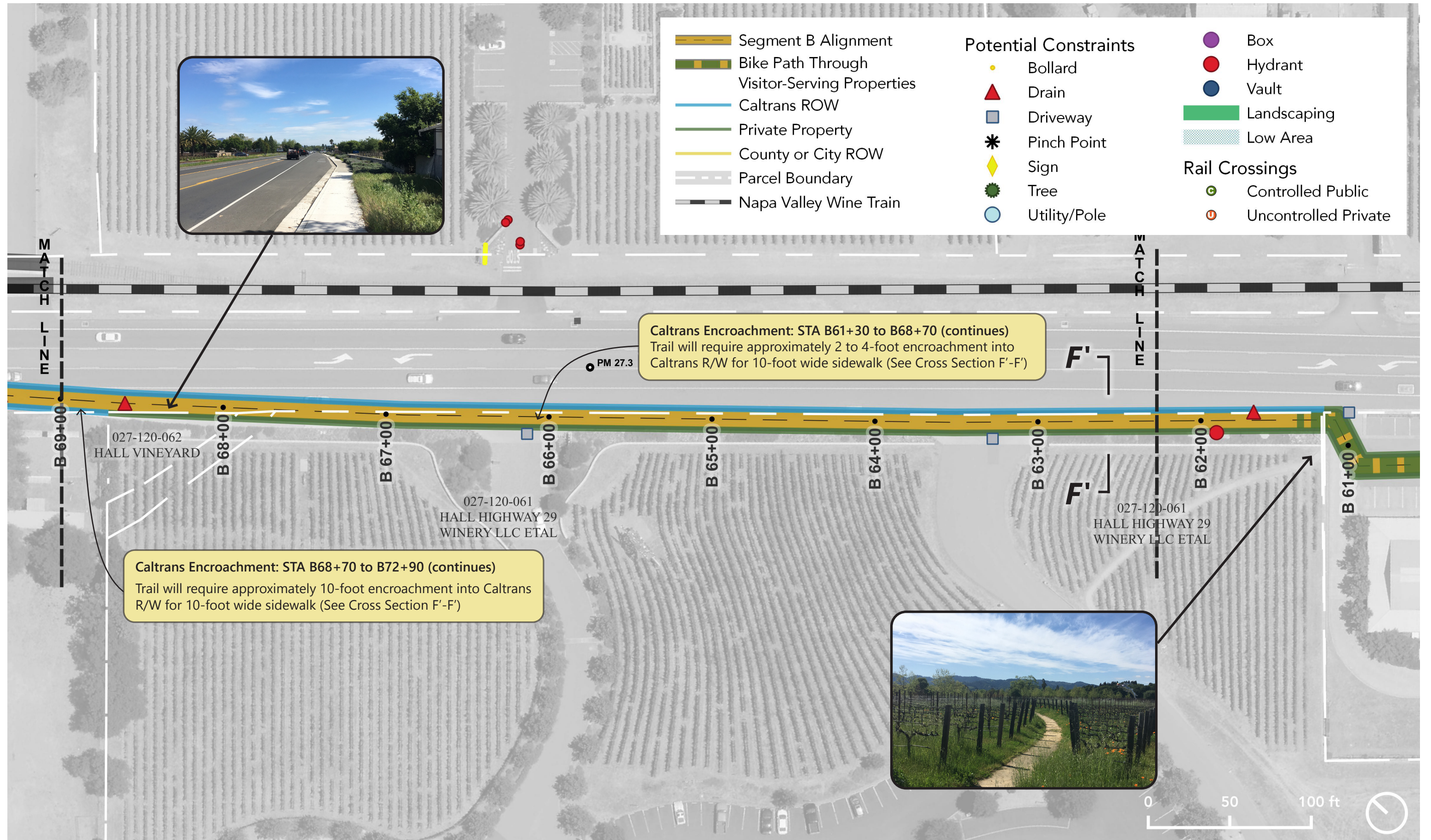


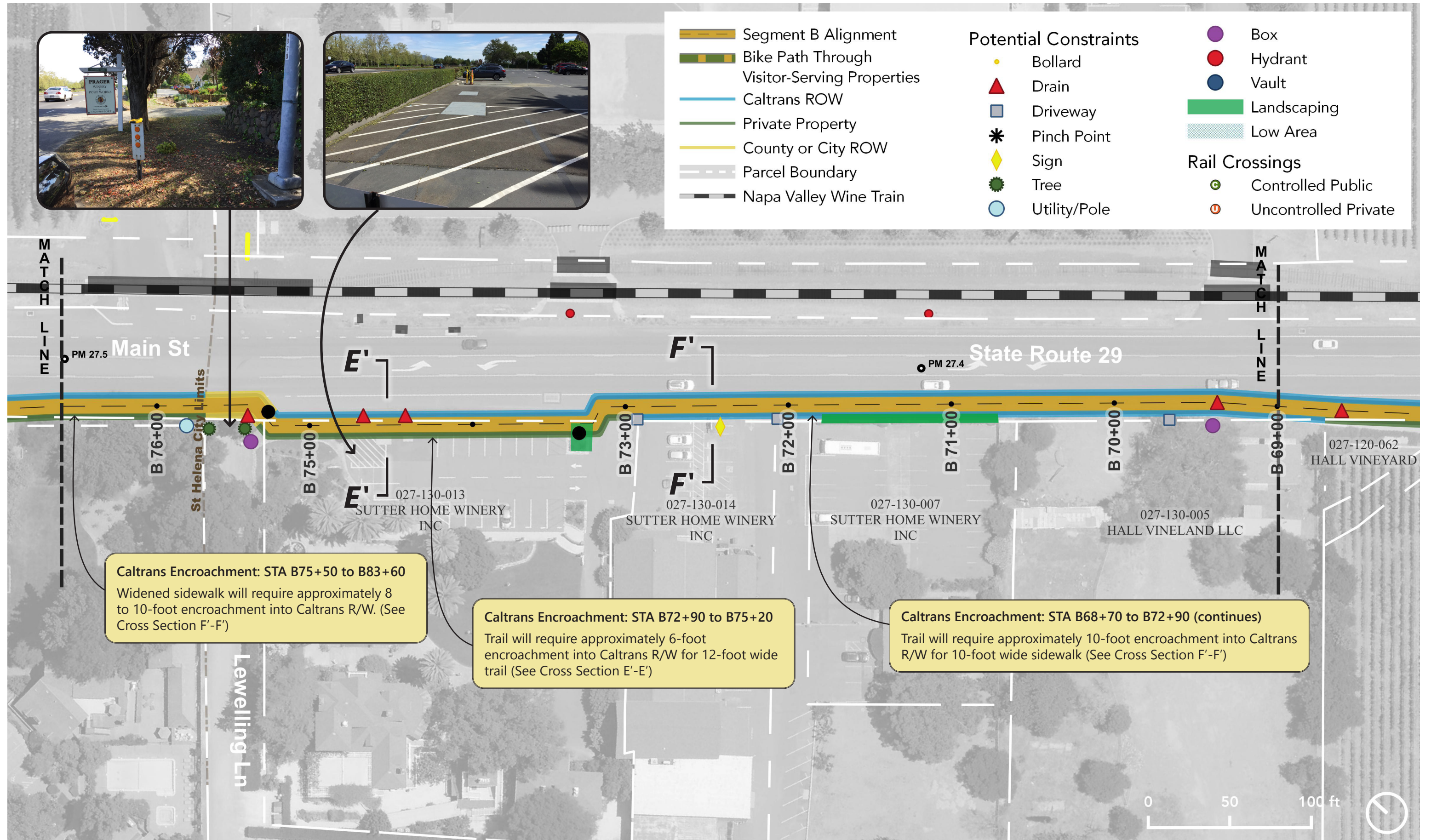


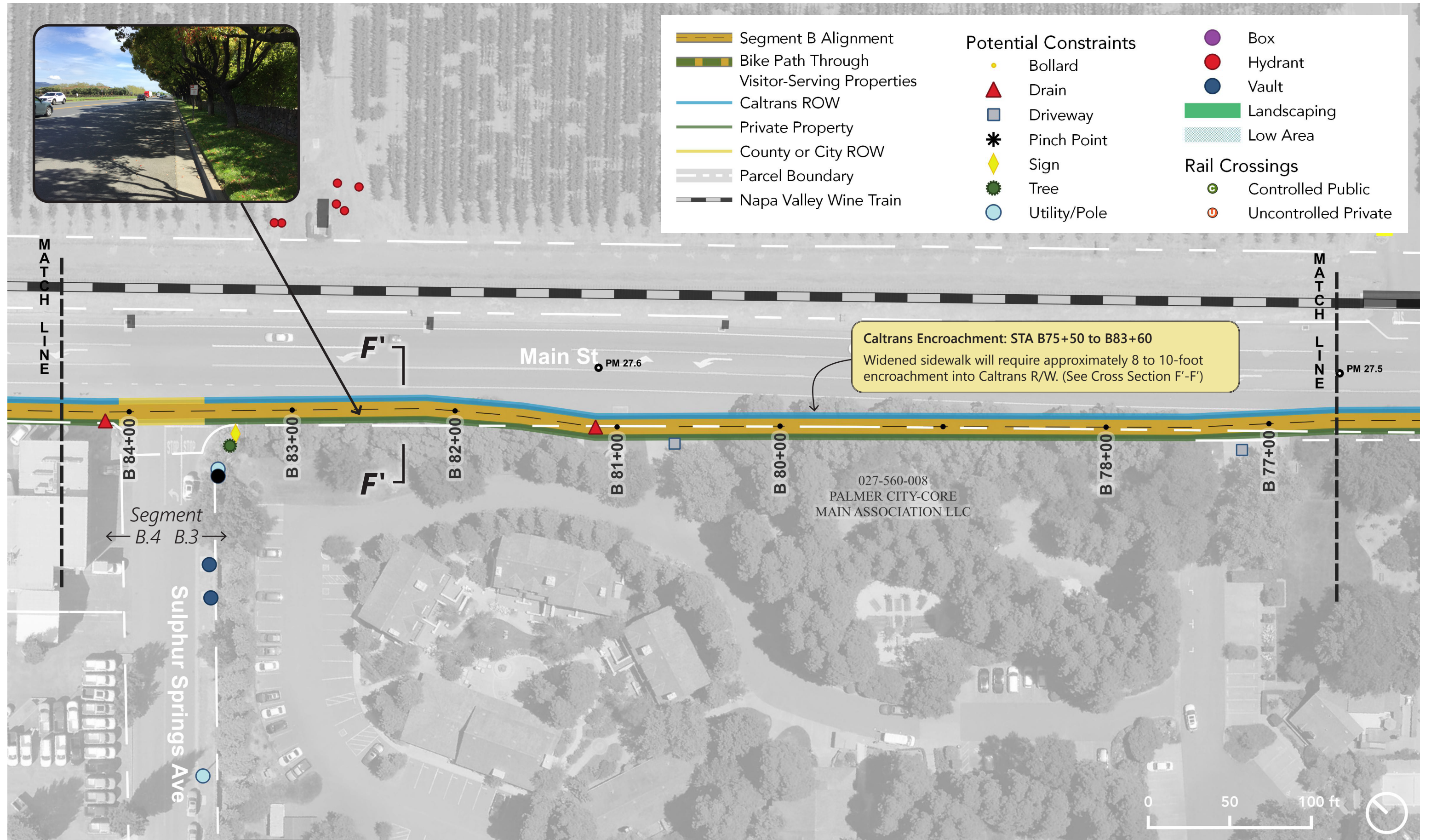


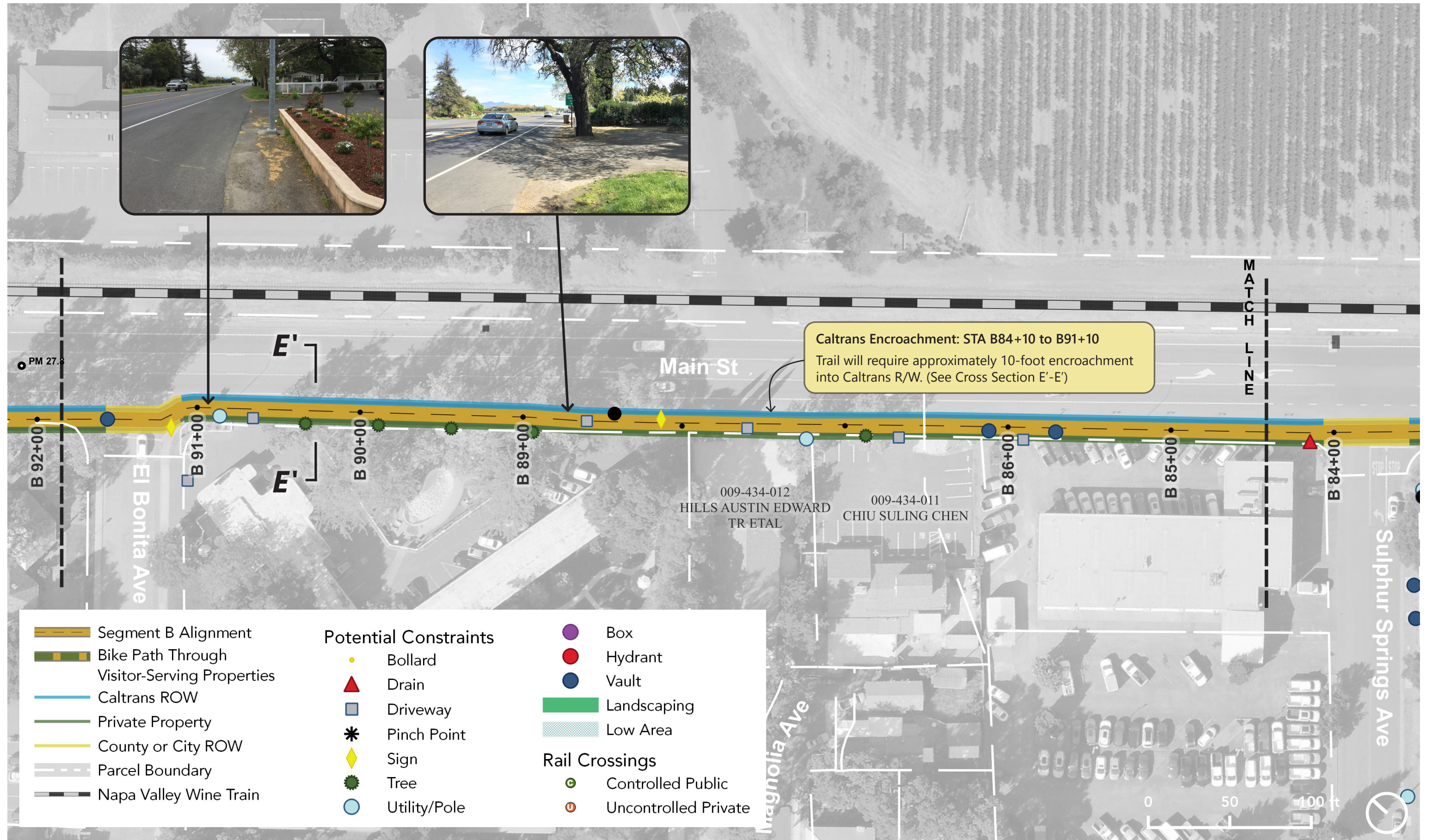


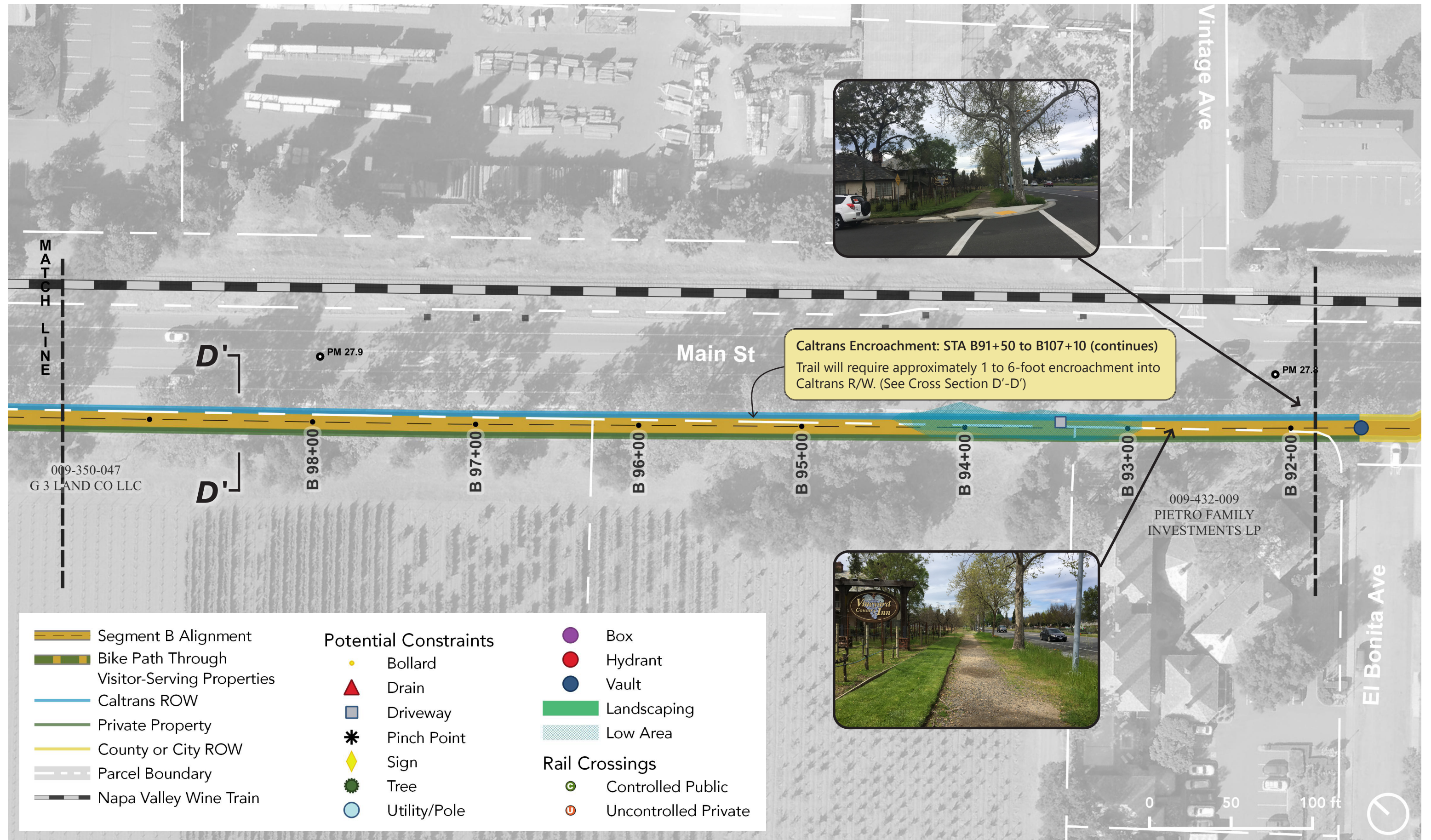


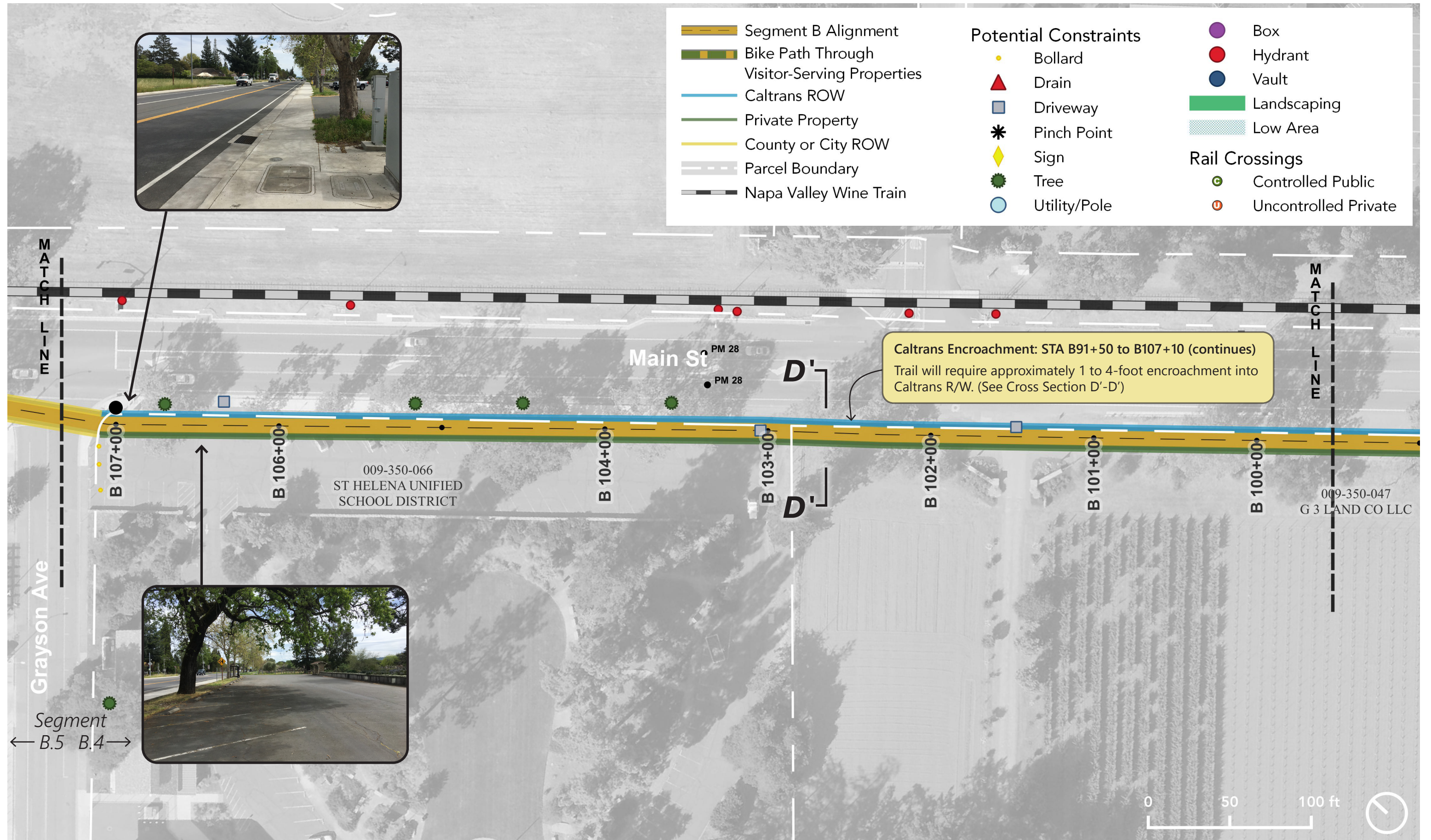


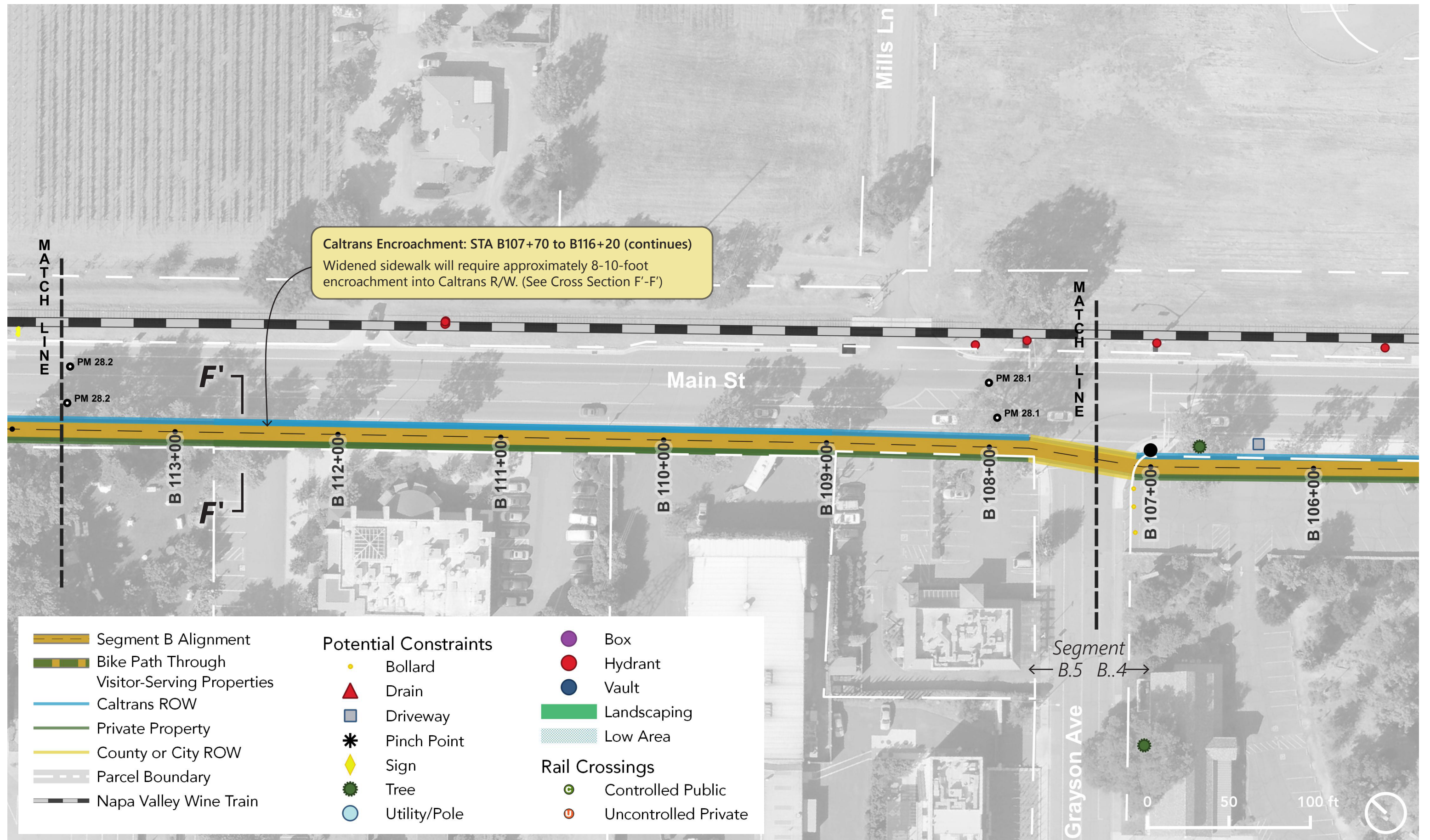






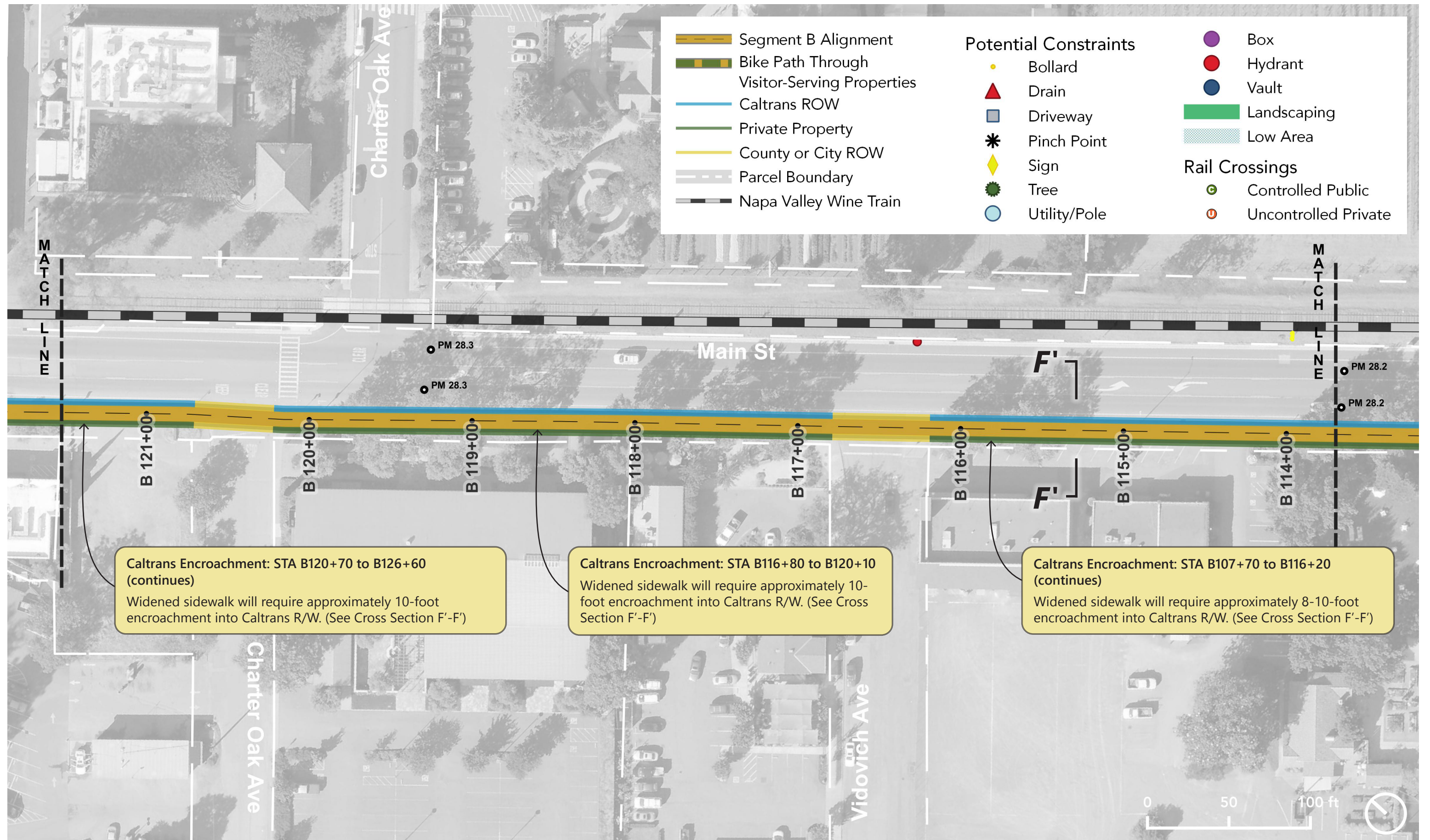


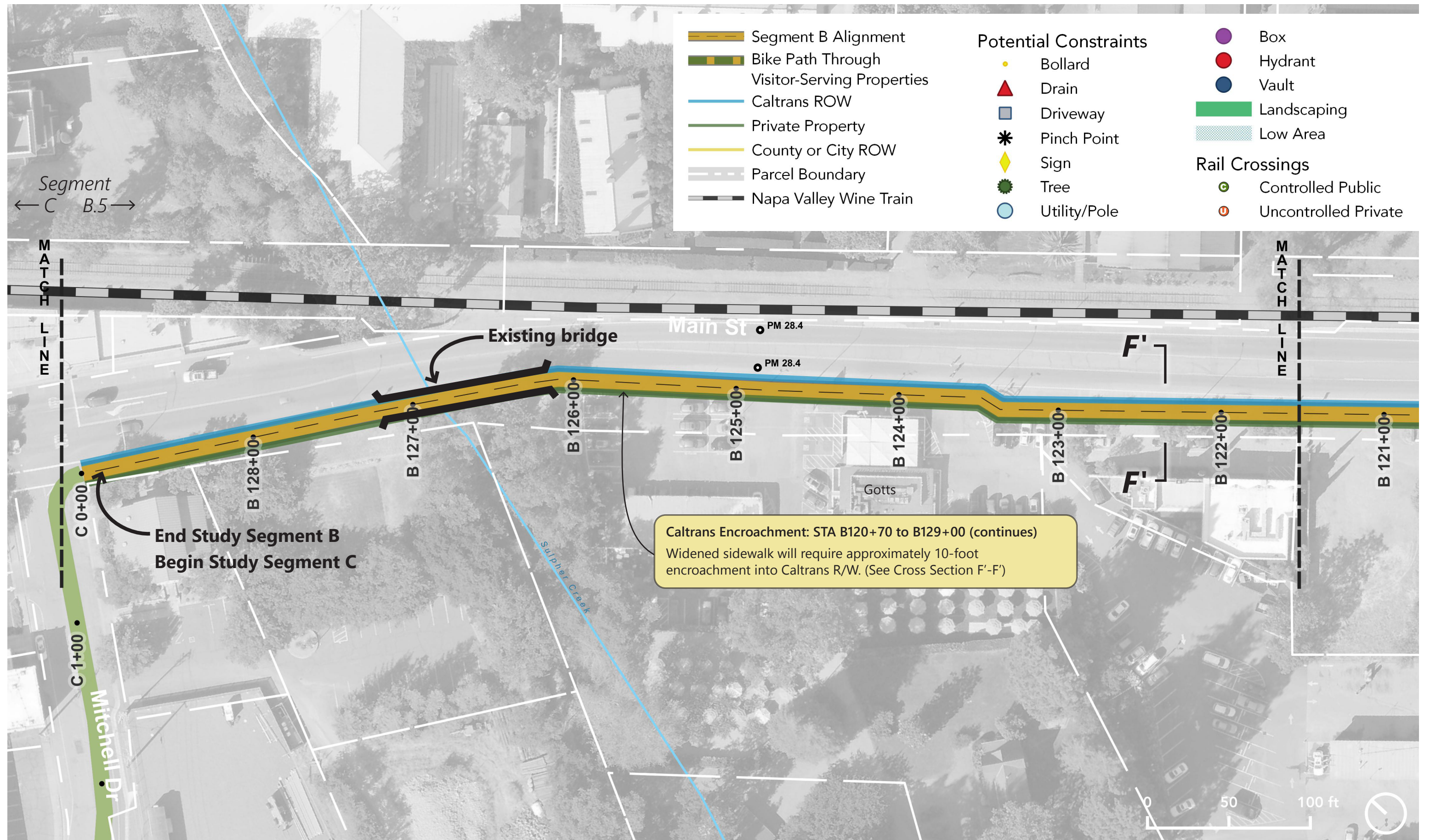




Caltrans Encroachment: STA B107+70 to B116+20 (continues)
 Widened sidewalk will require approximately 8-10-foot encroachment into Caltrans R/W. (See Cross Section F'-F')

- | | | |
|----------------------------------------------|--------------|-----------------------|
| Segment B Alignment | Bollard | Box |
| Bike Path Through Visitor-Serving Properties | Drain | Hydrant |
| Caltrans ROW | Driveway | Vault |
| Private Property | Pinch Point | Landscaping |
| County or City ROW | Sign | Low Area |
| Parcel Boundary | Tree | Rail Crossings |
| Napa Valley Wine Train | Utility/Pole | Controlled Public |
| | | Uncontrolled Private |



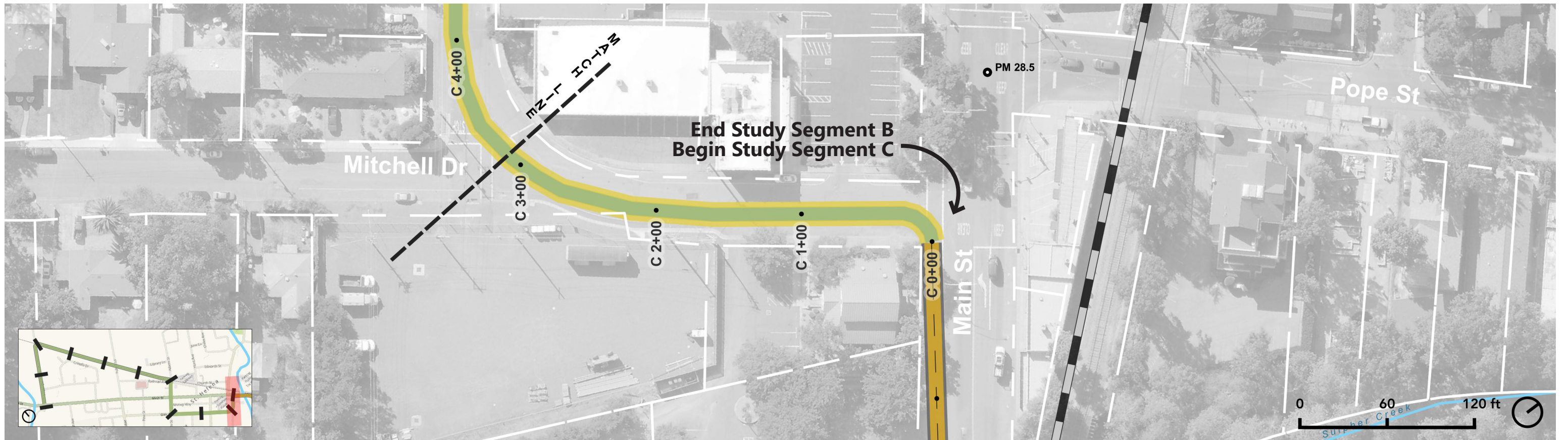


Segment B Alignment	Potential Constraints	Box
Bike Path Through Visitor-Serving Properties	Bollard	Hydrant
Caltrans ROW	Drain	Vault
Private Property	Driveway	Landscaping
County or City ROW	Pinch Point	Low Area
Parcel Boundary	Sign	Rail Crossings
Napa Valley Wine Train	Tree	Controlled Public
	Utility/Pole	Uncontrolled Private

Caltrans Encroachment: STA B120+70 to B129+00 (continues)
 Widened sidewalk will require approximately 10-foot encroachment into Caltrans R/W. (See Cross Section F'-F')

**End Study Segment B
 Begin Study Segment C**





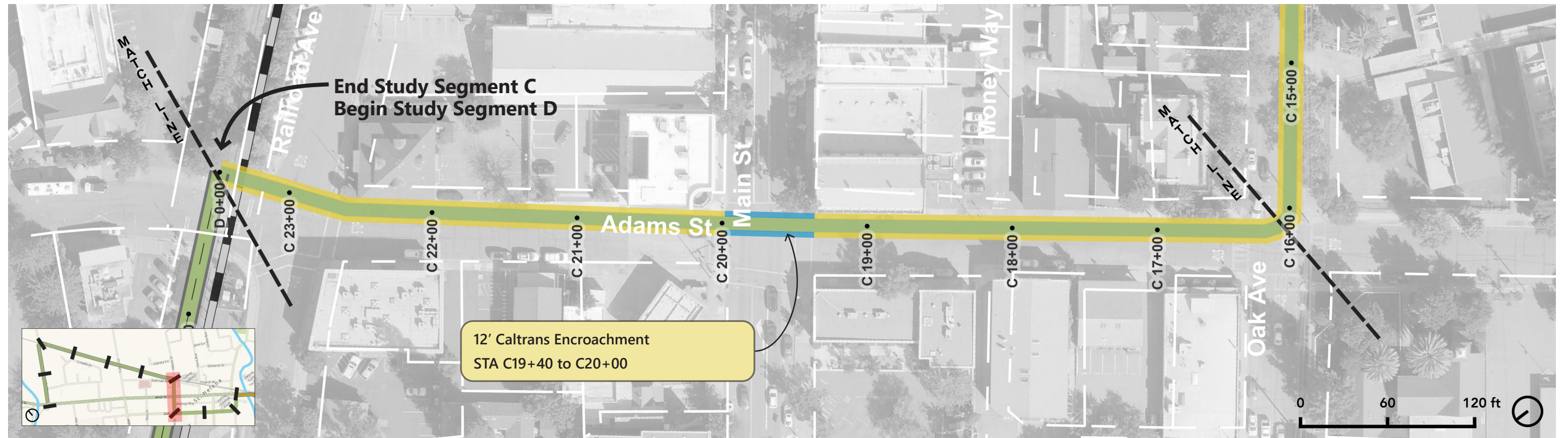
C-01



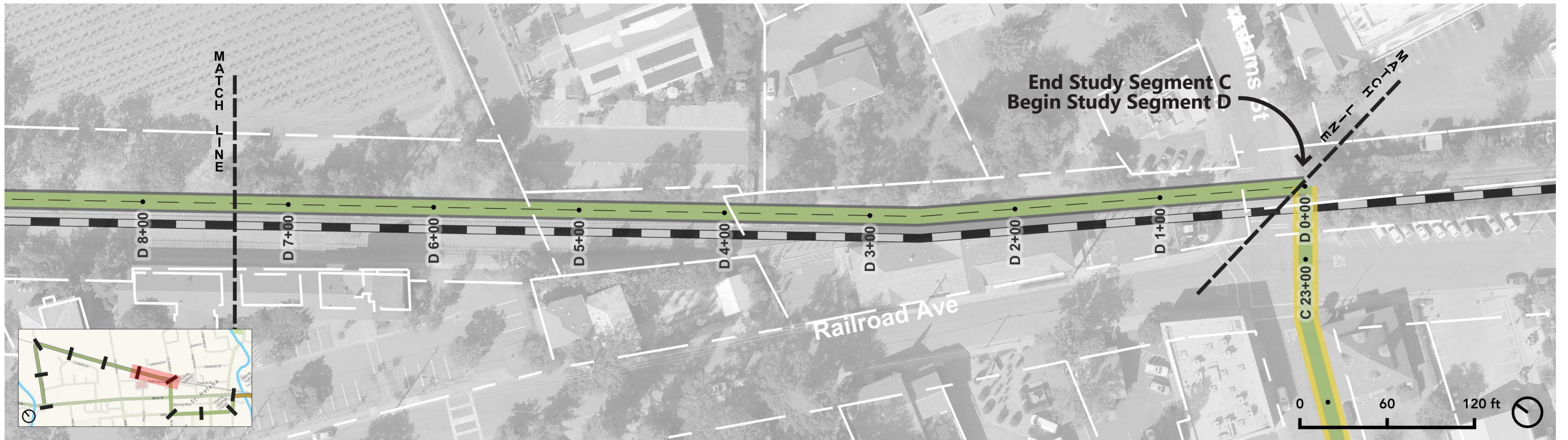
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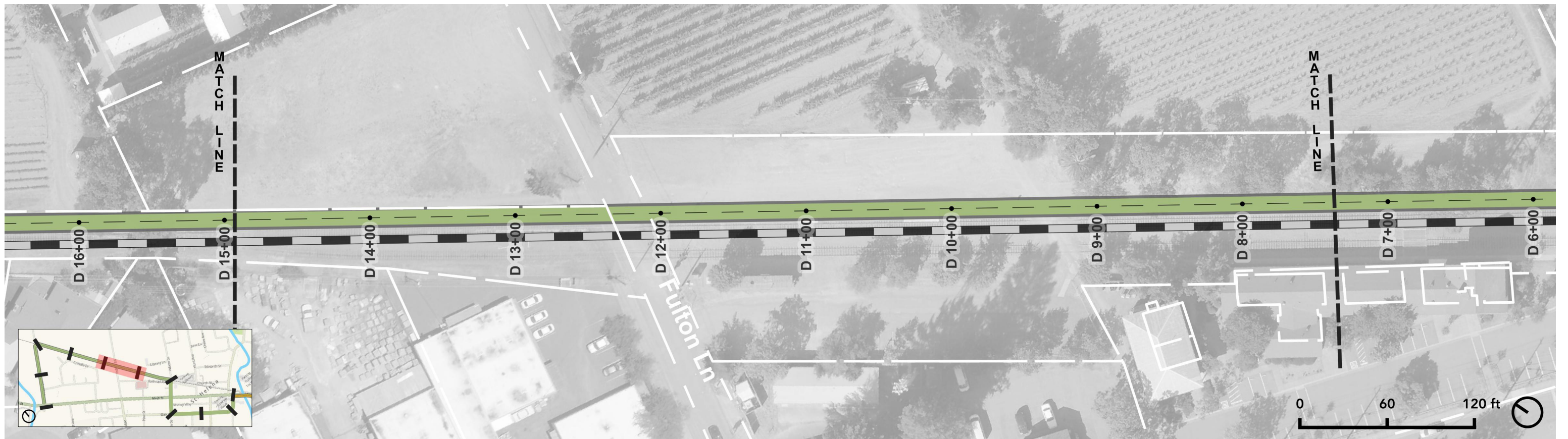
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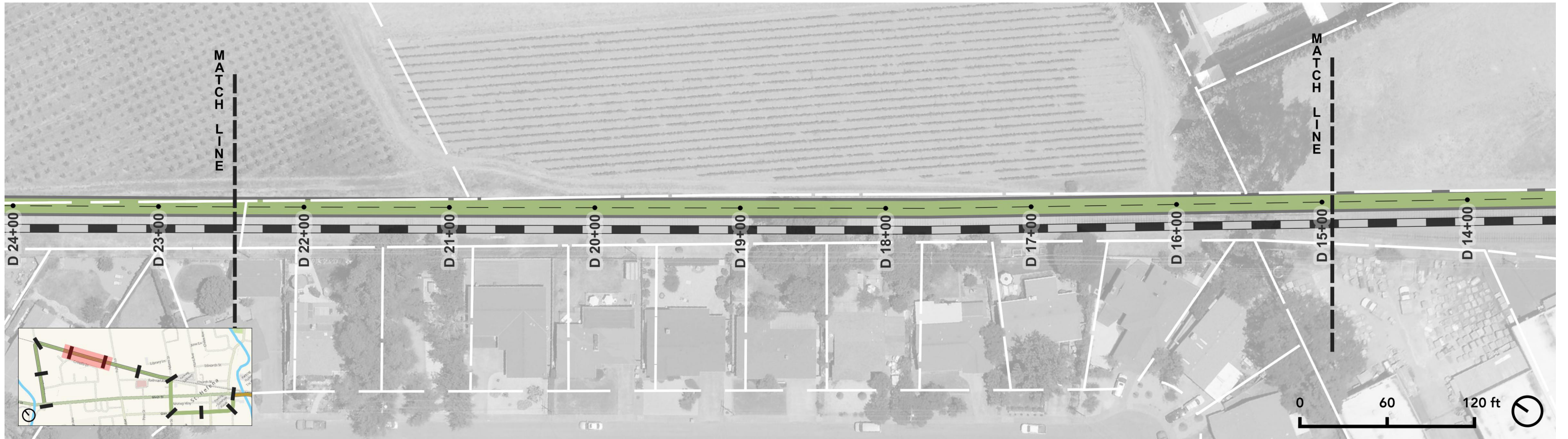
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D-01



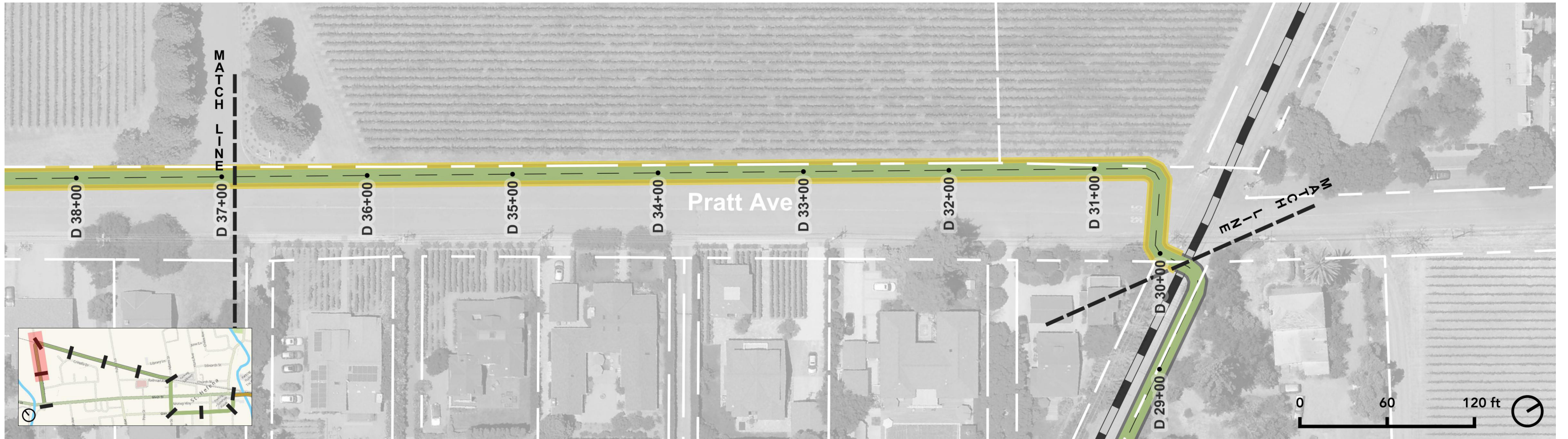
D-02



D-03



D-04



D-05



D-06



Preliminary Cost Estimate

A planning-level estimate has been prepared for all four segments. By definition, a “planning-level” cost estimate is preliminary as the trail design at this phase is not precise and there can be a significant variance in cost depending on the final design. The estimate is based on a series of per lineal foot trail type costs which were reviewed by BKF Engineers and referenced against recent construction . The estimate is broken down by segment.

The estimate includes Construction Overhead/Preparation Costs including mobilization and demobilization, traffic control, site stormwater pollution prevention plan (SWPPP) and temporary erosion control, contractor’s fee, general conditions (including inspections, permitting, drainage monitoring), and bonds and insurance. These costs are typically included in the contractors’ bids.

A contingency was added on top of the other costs for unanticipated items, as is typical for a planning-level estimate.

Segment A (Madison to Whitehall)	\$ 14,000,000	6.5 miles
Segment B1 (Whitehall to Llewelling)	\$ 1,824,258	1.4 miles
Segment B2 (Llewelling to Mitchell)	\$ 1,223,976	1.0 miles
Segment C (Mitchell to Adams)	\$ 2,000,000	0.4 miles
Segment D (Adams to Pratt)	\$ 1,481,116	0.8 miles
Total Estimated Cost for all Segments*	\$ 20,529,350	10.2 miles
Construction increase for 2026 @ 3% year over year	\$ 2,463,522	
Adjusted Total for Construction in 2026	\$ 22,992,871	
Design, Engineering and Environmental	\$ 3,000,000	13%
Right of Way (allowance)	\$ 1,000,000	
Construction Management (8%)	\$ 1,839,000	
Caltrans Review (2%)	\$ 460,000	
Permits	\$ 150,000	
Vine Trail Shelters and signage (allowance) - 3 total	\$ 450,000	
Total	\$ 29,891,871	
Cost per mile	\$ 2,917,898	

* Includes 30% Overhead 10% and 20% contingency

Preliminary Estimate, by Segment

			SEGMENT A (COUNTY - CLASS I) Madison to Whitehall		SEGMENT B1 (COUNTY - CLASS I) Whitehall to Llewelling		SEGMENT B2 (CITY - CLASS I) Llewelling to Mitchell		SEGMENT C (CITY - BIKE BLVD) Mitchell to Adams		SEGMENT D (CITY - CLASS I) Adams to Pratt		TOTAL	
Segment Length			34,470 LF	(6.53 miles)	7,550 LF	(1.43 miles)	5,400 LF	(1.02 miles)	2,350 LF	(.45 miles)	4,320 LF	(.82 miles)	54,090	(10.24 miles)
Type	Unit Price	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
10' Wide Trail -- Park Tread™	\$ 210	LF	5,690	\$ 1,194,900	-	\$ -	-	\$ -	-	\$ -	-	\$ -	5,690	\$ 1,194,900
10' Wide Trail -- Asphalt	\$ 190	LF	18,295	\$ 3,476,050	-	\$ -	1,280	\$ 243,200	-	\$ -	2,490	\$ 473,100	22,065	\$ 4,192,350
8' Wide Trail -- Park Tread™	\$ 168	LF	3,560	\$ 598,080	-	\$ -	-	\$ -	-	\$ -	-	\$ -	3,560	\$ 598,080
8' Wide Trail -- Asphalt	\$ 152	LF	6,340	\$ 963,680	5,720	\$ 869,440	2,260	\$ 343,520	-	\$ -	1,760	\$ 267,520	16,080	\$ 2,444,160
10' Wide Sidewalk	\$ 180	LF	-	\$ -	1,640	\$ 295,200	810	\$ 145,800	-	\$ -	-	\$ -	2,450	\$ 441,000
Trail Reinforcements	\$ 100	LF	3,447	\$ 344,700	755	\$ 75,500	540	\$ 54,000	-	\$ -	-	\$ -	4,742	\$ 474,200
Drainage Improvements - Minor	\$ 50	LF	7,850	\$ 392,500	-	\$ -	-	\$ -	-	\$ -	-	\$ -	7,850	\$ 392,500
Drainage Improvements - Moderate	\$ 150	LF	1,370	\$ 205,500	-	\$ -	-	\$ -	-	\$ -	-	\$ -	1,370	\$ 205,500
Drainage Improvements - Major	\$ 400	LF	400	\$ 160,000	-	\$ -	-	\$ -	-	\$ -	-	\$ -	400	\$ 160,000
Rail Crossing - Controlled	\$ 500,000	EA	3	\$ 1,500,000	-	\$ -	-	\$ -	-	\$ -	-	\$ -	3	\$ 1,500,000
Rail Crossing - Uncontrolled	\$ 64,000	EA	-	\$ -	-	\$ -	-	\$ -	1	\$ 64,000	1	\$ 64,000	2	\$ 128,000
Bridge	\$ 7,500	LF	130	\$ 975,000	-	\$ -	-	\$ -	-	\$ -	-	\$ -	130	\$ 975,000
Driveway Crossing	\$ 5,000	EA	21	\$ 105,000	19	\$ 95,000	20	\$ 100,000	-	\$ -	5	\$ 25,000	65	\$ 325,000
Road Crossing - Near Intersection	\$ 5,000	EA	4	\$ 20,000	3	\$ 15,000	5	\$ 25,000	-	\$ -	2	\$ 10,000	14	\$ 70,000
Road Crossing - Mid-block	\$ 25,000	EA	2	\$ 50,000	-	\$ -	-	\$ -	-	\$ -	-	\$ -	2	\$ 50,000
Tree removal	\$ 1,000	EA	6	\$ 6,000	-	\$ -	-	\$ -	-	\$ -	16	\$ 16,000	22	\$ 22,000
Utility Reset or Relocation - Minor	\$ 1,000	EA	9	\$ 9,000	23	\$ 23,000	-	\$ -	-	\$ -	10	\$ 10,000	42	\$ 42,000
Utility Reset or Relocation - Major	\$ 2,500	EA	26	\$ 65,000	1	\$ 2,500	12	\$ 30,000	-	\$ -	1	\$ 2,500	40	\$ 100,000
Fencing -- Split Rail	\$ 40	LF	23,850	\$ 954,000	-	\$ -	-	\$ -	-	\$ -	6,000	\$ 240,000	29,850	\$ 1,194,000
Barrier	\$ 400	LF	250	\$ 100,000	-	\$ -	-	\$ -	-	\$ -	-	\$ -	250	\$ 100,000
Other project site work (striping, pavement modifications)	\$ -	LS	-	\$ -	-	\$ 27,635	-	\$ -	-	\$ -	-	\$ 31,200	-	\$ 58,835
Bulbouts	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 630,800	-	\$ -	-	\$ 630,800
Sidewalk Gap Closure	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 66,900	-	\$ -	-	\$ 66,900
Raised Table/Speed Table Intersections	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 448,000	-	\$ -	-	\$ 448,000
Roadway Resurfacing - Mitchell	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 113,110	-	\$ -	-	\$ 113,110
Roadway Resurfacing - Oak	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 277,100	-	\$ -	-	\$ 277,100
Roadway Resurfacing - Adams	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 145,200	-	\$ -	-	\$ 145,200
Traffic Signal Modification	\$ -	LS	-	\$ -	-	\$ -	-	\$ -	-	\$ 200,000	-	\$ -	-	\$ 200,000
Segment Construction Cost				\$ 11,119,410	\$ 1,403,275	\$ 941,520	\$ 1,945,110	\$ 1,139,320	\$ 16,548,635					
15% construction overhead costs + 20% contingency				30%	\$ 3,335,823	\$ 420,983	\$ 282,456	\$ 583,533	\$ 341,796	\$ 4,964,591				
Adjusted Segment Cost				\$ 14,455,233	\$ 1,824,258	\$ 1,223,976	\$ 2,528,643	\$ 1,481,116	\$ 21,513,226					

Prepared for



Prepared by:



TrailPeople

Landscape Architects and Planners

**zander
design**

landscape
architecture
& planning